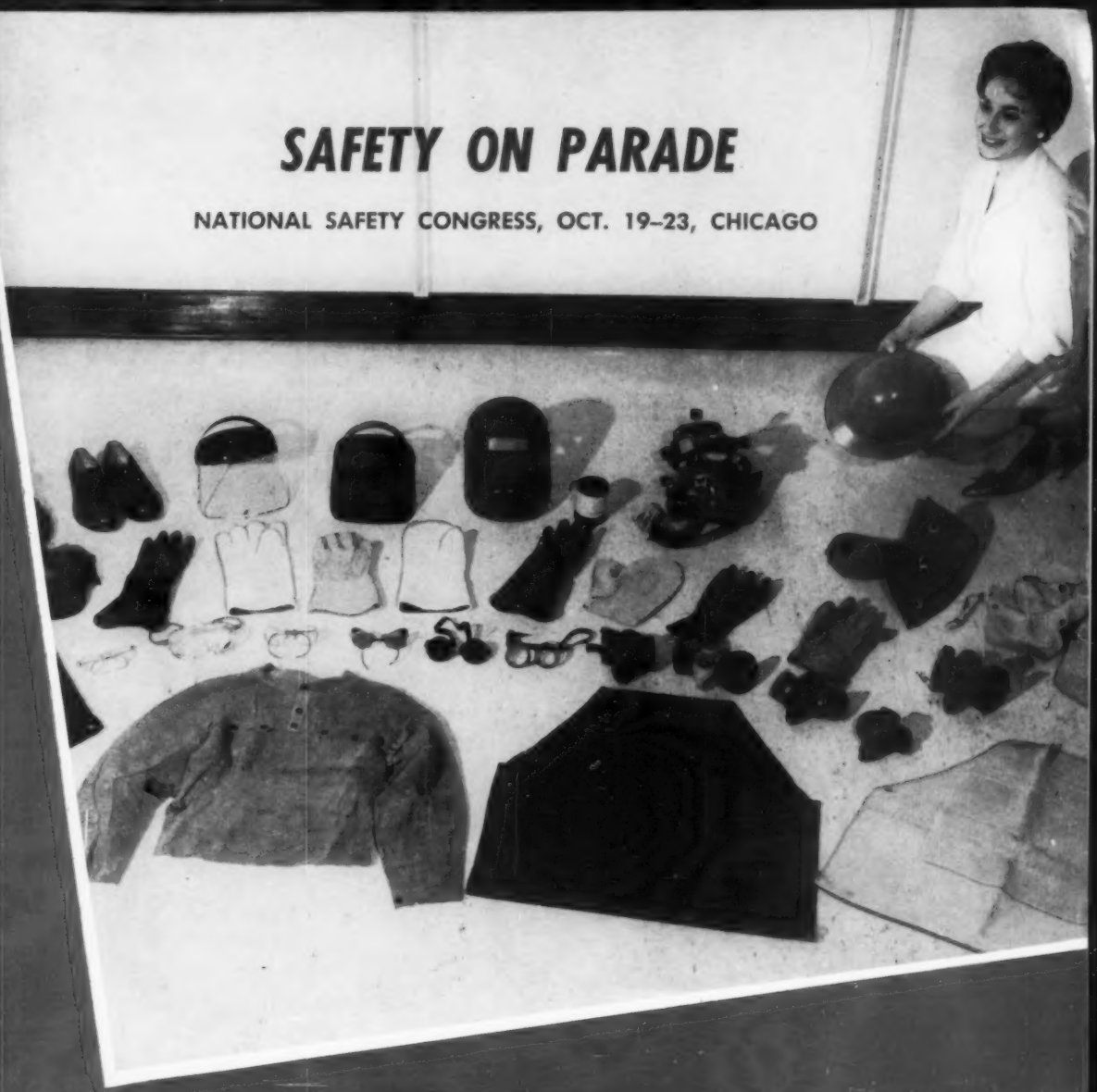
SAFETY ON PARADE

NATIONAL SAFETY CONGRESS, OCT. 19–23, CHICAGO



Safety Maintenance

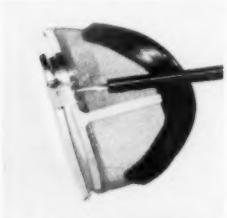
EST. 1901 • AMERICA'S PIONEER MAGAZINE IN ITS FIELD • OCTOBER, 1959 • 50¢

Published By Alfred M. Best Company, Inc.

**PROTECTION PLUS*
by BAUSCH & LOMB**

Wire mesh side shield has fine screen to stop particles and give ample air flow.

NEW M-70 Metal Frame Safety Glasses



Insulated wire mesh side shield with heat-resistant covering. Non-corroding.

M-70 The basic B&L metal frame safety glass.

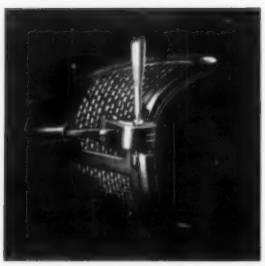
P-71 The M-70 with wire mesh side shields.

Side shield of solid acetate stops passage of liquids and dust. In clear or green.

Job-Tailored!

Fitting the protection to the hazard is half the battle. Now you do it easily and swiftly in your own department with a single basic front and a selection of side shields. M-70 combines the sturdiest metal construction with distinctive styling and new Bal-SAFE S-7 lens shape. Another striking example of the economy of Bausch & Lomb quality. Write for Catalog Folder A-1800: Bausch & Lomb Optical Co., 90546 Smith Street, Rochester 2, New York.

Perforated acetate side shield provides protection plus comfort. In clear or green.



Ingenious expansion end piece does the trick . . . allows easy assembly and disassembly of side shields without changing fronts or temples.

BAUSCH & LOMB
SINCE 1853

***Protection PLUS Safety Products**
protection + economy + worker acceptance

(For details, use Key # K-1 on card on page 71)

to simplify your industrial hearing test program . . .

check employee hearing faster, more accurately

with the

Beltone®

PORTABLE AUDIOMETER

Model 9-A, $295. The most widely used audiometer for industrial hearing conservation programs. Model 9-A is equipped with individually equalized double air receivers, instruction manual, pad of audiogram cards, plastic dust cover.

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Experts agree that the Beltone Portable Audiometer gives industry outstanding advantages for testing. Leading companies have turned to the Beltone Portable Audiometer because it gives them these unsurpassed features:

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3. **Weight**—only 11 pounds—far less than most previous audiometers.
4. **Low Cost**—no other audiometer costs so surprisingly little to buy, service, and maintain.

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2900 West 36th Street, Chicago 32, Illinois

(For details, use Key # K-2 on card on page 71)

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Plastic Foam – an entirely new approach to dust filtering

NEW

Resp-R-Aid

MASK

A lightweight, low-cost, urethane filter-respirator with the maximum possible filtering area.

A NEW IDEA IN FILTERING — Resp-R-Aid utilizes the entire mask area for filtering. It is the most effective, most practical dust mask yet conceived. Its increased filtering area — more than double the functional filtering area of most other masks — greatly reduces the inhalation and exhalation resistance to make breathing considerably easier. At the same time, the special urethane construction filters out even minute particles.

A NEW USE OF A NEW MATERIAL —Special techniqu developed by Watchemoket Optical Company make it possib to mold this amazing new urethane foam into a one-piece, r usable, easy to clean filter. The filter is non-allergenic . . . wor absorb moisture or odors . . . won't mildew or deteriorate . . can be washed repeatedly with warm water and mild soap . . it's tough, durable and stable. The entire mask weighs hard more than an ounce. *Another Watchemoket first.*

The Fastest Custom-Fit Frame in the World

THE

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LINE

Fits everybody comfortably . . . accommodates glass or plastic lenses . . substantially reduces inventory.

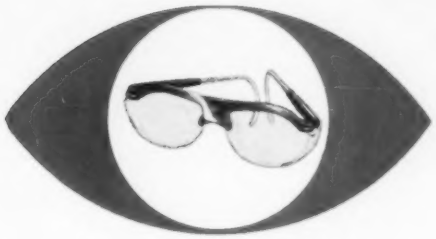
ANOTHER GREAT DEVELOPMENT IN SAFETY FRAMES — The Rapido Line enables you to slash your inventory costs, eliminate fitting problems and provide your workers with attractive, modern, custom-fit frames. You stock only two sizes — 46MM and 48MM — to satisfy all your fitting needs. For the first time, safety and economy have been incorporated successfully into a single safety frame that your workers will wear.

ALL THESE FEATURES — Patented Smooth Hook or Spatu Retrax Temples telescope in and out for a perfect fit . . . tv Universal Nosebridges fit comfortably on any shape nose . Spred-End Frame accommodates glass, plastic or prescripti safety lenses and enables worker to change lenses quickly a easily without heating . . . frames are available with or witho lenses, with or without side shields, and in a variety of attracti colors. *Another Watchemoket first.*

(For details, use Key # K-3 on card on page 71)

UC-AWAY safety spectacles provide the extra pro-tion of plastic lenses with integral side shields. djustable Retrax Temples telescope in or out for rfect fit . . . Universal Nosebridge fits all workers. nses snap in or out for quick, easy replacement . . . e securely locked in place against impact. Tuc-Aways e so light and comfortable workers hardly know they e wearing them.

Tuc Away

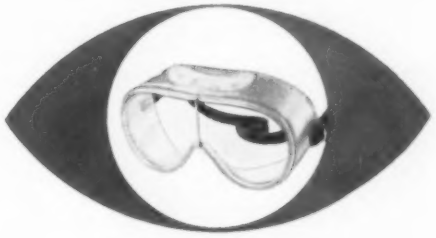


SOR-TUCS have all the features of Tuc-Away, plus er-eyes protection. Visor is an integral part of the me; fits snugly against the forehead. Lenses, inter-angeable between Tuc-Away and Visor-Tuc, are ailable in four styles: Semi-cup, Full-cup, Regular de Shield and Full Side Shield; choice of Clear, reen or Gold.

Visor-Tucs

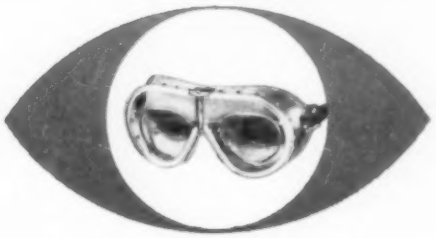
OFT VINYL COVER GOGGLES, the finest of eir type . . . are safer because they have heavy duty ethacrylate Impax® lenses and Stac-Vent ventilation. arge enough to fit over prescription frames. Lenses are sily replaced and frames last indefinitely. Impax® nses exceed specification for heavy impact; are curely locked in place by patented metal lock bar. lso available with acetate lenses for light impact.

Soft Vinyl



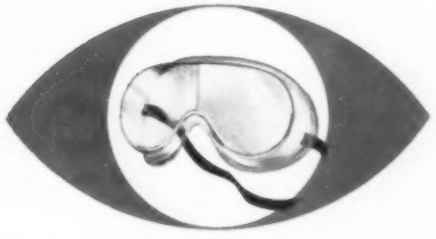
IGID FRAME COVER GOGGLES molded round r square are available in two sizes, regular and extra rge. Heavy impact Impax® lenses are easily replaced nd are held securely in place by a positive metal lock ar. Clear plastic frame allows unimpeded vision in all irections. These goggles are large enough to fit over ost prescription frames.

Rigid Frame



HEEPEE, one piece Acetate Goggles, are formed by special process developed by Watchemoket Optical o. They are optically correct and provide full, all-round vision with no distortion of image through he lens area. They are fully ventilated, attractive, com-ortable and inexpensive . . . an ideal light to medium mpact goggle.

Cheepee



ETHASPEC Eye Shield is an attractive, low cost, crylic visitor's goggle, for areas where impact protec-ion is needed. With patented Retrax Temples which elescope in or out for instant comfort, one size will it almost anyone and keep inventory at a minimum. The curved acrylic lens with integral visor provides good all around protection.

Methaspec

Quality Eye Protective Equipment *Made by the Leaders in Plastic*

See your local Eye-Savers Dealer or write . . .

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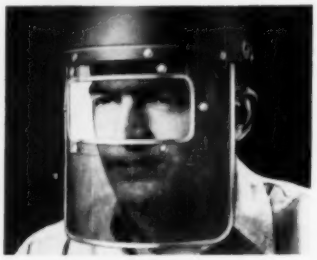
(For details, use Key # K-4 on card on page 71)

See these New Products at the Safety Show

They Prove Once Again that You Always Get Your Money's Worth when you insist on the AO Trademark



AO No. 283 "Kool-Vent" Face Shield

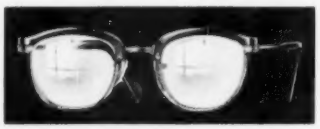
Way ahead in vision and ventilation. Has clear acetate section before eyes for vision, 24 mesh screen elsewhere for ventilation. Adjustable fiber headband. Deep spark deflector. Particularly recommended for hot operations.

AO F9500M Mahogany Ultrascopic Safety Glasses

Frames are flame-resistant cellulose acetate. Close orbital fit. Makes an ideal Safety Prescription goggle for both men and women. Also available in pink crystal.

AO No. 711 Splash Goggle

For chemical exposures. Protects against radiant heat and molten sodium splash. A forehead and nose shield gives added protection. Hook on shield permits use of a flame-resistant bib for protecting lower face.



AO F5200 "Safemaster" Ultrascopic Safety Glasses

Virile good looks is the keynote! Frame is high quality nickel. Trim is durable non-flammable plastic — minimizes glare reflection. Every frame must pass National Bureau of Standards tests.

AO R-4000 Series Respirator ("Drednaut")

26 respirator-goggle combinations help control costs by cutting inventories. Cartridges are interchangeable to protect against a multitude of hazards — silica, lead, organic vapors, acid gases, ammonia, metal fumes, insecticides and radioactive particulate. Can be worn over spectacles.

AO 325A Chippers' Coverglas Goggle & 329A Welders' Coverglas Goggle.

Fit 99% of workers — have wide range of vision. Fit over all types of correction spectacles including those with decentered temple pieces. 50 mm. round lenses.

AO C208B Cape Sleeve & Bib

Lightweight, flexible leather protection for welders performing gas shielded electric welding. Weighs only 15½ ozs! Seam ends reinforced with steel rivets.

AO Asbestos Clothing

New Super-Safe Flameproofed Asbestos Clothing. Protects against molten metal splash of 3000° F. Light weight — offers workers greater mobility and freedom. Applications: steel mills, foundries, aluminum plants.

YOUR NEAREST AO SAFETY PRODUCTS REPRESENTATIVE CAN SUPPLY YOU

American Optical Company
SAFETY PRODUCTS DIVISION
SOUTHBRIDGE, MASSACHUSETTS
Safety Service Centers in Principal Cities

Always insist on AO Trademarked Safety Products

(For details, use Key # K-5 on card on page 71)

SEND

THIS PERSONAL SAFETY MESSAGE TO EVERY ONE OF YOUR EMPLOYEES.

- Safety is made appealling . . . vivid . . . engaging . . . colorful!
- Each worker clearly sees how safety benefits him . . . how doing his part helps others!
- You get enthusiastic safety cooperation instead of tolerance . . . from every employee . . . every month!

. . . talks the worker's language!

YOUR IMPRINT HERE!

packed with pictures, alive with animated cartoons, touched with humour that gives snap to your message, it makes safety interesting and down to earth. Twelve times a year it covers accident hazards. Across the nation leading industrial firms state it's the only safety paper their employees will read . . . and take home to their families.

It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

YOUR SIGNATURE HERE!

Make *Your Safety News* your own publication . . . your good will ambassador . . . working for you toward better industrial relations. If you wish, your facsimile signature can be printed here to identify you with the message that gets next to your men and boosts morale.

NOTE: *Your Safety News* is designed to promote better employer-employee relations. Every item is carefully weighed and tailored to this viewpoint!

INSIDE PAGES
(Pages 2 and 3)

THOUGHTLESSNESS IS A THIEF
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms: it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
PLAYFULNESS IS A PIRATE
He is a deceptive rascal. His hi-jinks may put him in the spotlight, but his practical jokes and showing-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's colorless, non-irritating, tasteless, practically odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning. First, a tight feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing; BUT if the concentration of the poison gas is high, there may be loss of consciousness without these warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . so can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blown-out exhaust gasket, cracked exhaust manifold, or leaky muffler. Play it safe:
1. Be sure your muffler and exhaust are in good condition (they can leak long before they become noisy).
2. Always keep a car window open, even a little, for fresh air.
AN INTIMATE LOOK AT FOUR VILLAINS
SAFETY LAZINESS IS A SIMON LEGREE
If you are lazy about safety rules, then accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to trail you.
HAZARDOUS METHODS ARE A HOLD-UP MAN
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by wanting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but alibis only lead us up a blind alley with an accident waiting in ambush.
Two Excellent Reasons
For Wearing Safety Shoes

EMPHASIZES SELF INTEREST

Your employee's self interest in his own safety is always emphasized. Constant safety consciousness is promoted by covering household hazards, transit to and from the job and on the job caution against accidents.

CLEVERLY ILLUSTRATES THE POINT

Artwork is carefully chosen to lodge home each point persuasively. The cartoon style makes YOUR SAFETY NEWS as familiar and welcome as the picture packed Sunday supplement.

WINS READERS WITH A FOLKSY APPROACH

Keeping the contents folksy, adding the light note of humor, gets your message across with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of indifference.

RIVETS ATTENTION WITH VIVID COLOR

Generous use of color sparks the message, and adds impact to the contents of YOUR SAFETY NEWS. Each issue is as alive as any news-stand favorite.

HOW TO ORDER:

YOUR SAFETY NEWS may be ordered with either the standard imprint or with your Own Special Imprint. The standard imprint reads "PLEASE COOPERATE FOR THE SAFETY AND HEALTH OF ALL . . . signed . . . A SAFE WORKER."

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Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 118, Number 4 **October, 1959**

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Cover picture by courtesy of Allis-Chalmers Mfg. Co.: A display of some of the protective equipment used in A-C plants in the United States and Canada.

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

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it's SAFE to say

• NEON LIGHTED JUNGLES

Ordinarily, this page does not concern itself with the off-beat approach to safety. Instead, as the nation's pioneer safety magazine it is dedicated to accident prevention in industry. But the time has come to recognize a menace reaching such proportions as to justify drastic campaigns of action on the part of an aroused and frightened population.

Whether or not we like to admit it, the larger cities of the country have become a jungle! The smaller communities too are well represented in the rate of crime among young hoodlums. When sixteen- and seventeen-year-old snarling beasts walk around with murderous weapons wantonly killing innocent citizens, we can no longer dismiss their crimes as pranks.

And what has this to do with the limited area of the safety director? In the first place, many of them are fathers themselves and we are only deluding ourselves if we confine juvenile delinquency to the province of broken homes, poverty-stricken communities or drunken parents.

More important is what the safety movement can contribute to protecting not only the rights but the actual lives of our people. As leaders in the field of preventing human suffering, tragedy and loss in their respective communities, safety directors and those charged with safety responsibility are in a key position to lend their voice and their efforts to stemming juvenile delinquency.

Most communities have worth-while organizations formed to channel the over-vibrant energies of young people. One need be no professional reformer or psalm-singing "square" to find a way to guide those who will be expected to take over when we lay down our tools of good citizenry.

If we don't engage in some form of extra-curricular "safety guidance" we will find to our sorrow that accident prevention and violent death can begin instead of end with the five-o'clock whistle!

• THE COUNTRY'S LARGEST SAFETY EXHIBIT

With the country's high rate of industrial employment, management and leaders of safety are focusing their sights on the National Safety Congress and Exhibit, sponsored by the National Safety Council, and scheduled for the week of October 19th in Chicago. A tremendously stepped-up program of more subject sessions, more speakers and more exhibitors presents the world's largest parade of safety ideas.

Hundreds of exhibits presenting the latest developments in equipment, devices, products and services will attract the close interest of nearly 1,200 delegates from all parts of this hemisphere and countries of the free world.

SAFETY MAINTENANCE urges a full attendance at this Congress and Exhibit so that visitors can return to their home districts revitalized for the further advancement of safety.

. . . *speaking of FRAMES!*

Here is the most attractive and comfortable frame for safety glasses yet devised. These anodized aluminum frames, in rich copper tone, are sturdy, light weight and fully protective. They come in three lens sizes:— 44MM, 46MM and 48MM with a choice of five nose bridge widths. Available in clear or tinted safety lens and ground to your prescription if desired. Ask for KIMBALL Model MA-3-A.

The new KIMBALL oxidized wire side shield gives 20 times more ventilation than the best of the plastics. Side vision is greatly improved and glare is eliminated. The wire screen is permanently moulded into the acetate frame. Ask for KIMBALL Model MA-33-A.

OTHER KIMBALL SAFETY PRODUCTS

EYE PROTECTION: Spectacle Goggles, Welding Goggles, Composition Goggles, Sideshields.
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GLOVES: Welder's, Asbestos, Steel Stitched.
MITTENS: Welder's, Asbestos, Steel Stitched.
BODY PROTECTION: CLOTHING: Wool, Flameproofed Cotton • LEGGINS and SPATS: Leather, Asbestos, Flameproofed Cotton • APRONS: Leather, Asbestos, Flameproofed Cotton.

Kimball SAFETY PRODUCTS COMPANY

9310 Wade Park Avenue • Cleveland 6, Ohio

(For details, use Key # K-6 on card on page 71)

DUPOR
No. 4

For nuisance dusts and fumes. Weighs only 4 oz.

$2.00

DUPOR
No. 40

U.S.B. of M. Approved. Has 40 sq. in. filters for Pneumoconiosis producing and nuisance dusts.

$3.00

DUPOR
No. 46

U.S.B. of M. Approved for Pneumoconiosis producing and Lead dusts.

$3.25

DUPOR
No. 1

Miniature nose mask for nuisance dusts and fumes.

$1.20

DUPOR
No. 24

U.S.B. of M. Approved. Has 24 sq. in. filters for Pneumoconiosis producing and nuisance dusts.

$3.00

DUPOR
No. 10

Chemical cartridges. For organic and inorganic gases.

$5.00

DUPOR
No. 20

Double sponge, for cool, water-washed breathing.

$2.50

DUPOR
Automatic

With sponge filter for water-cooled breathing.

$2.25

DUPOR
Smoke Mask

Equipped with "Nod & Shake" fog-proof, gas-tight goggles.

$5.00

COVER'S
"Nod & Shake"
GOGGLES

Gas-tight, fog-proof. Wear with any respirator.

$2.00

BREATHE EASIER

IN DUST, FUMES GASES, SMOKE

WEAR A GENUINE

DUPOR

REG. U. S. PATENT OFF.

Respirator

light weight • greater visibility • no blind spots
face cloth for personal sanitation • panorama view
controlled breathing • exclusive patented features

H. S. COVER
Dept. 1009
South Bend 14, Ind.

(For details, use Key # K-7 on card on page 71)

Safety shoe store operator, William Meyers, fits a fellow employee with pair of popular safety oxfords.

Rufus Carper can't help admiring his torn safety shoe despite its slashed condition. It saved his toes from a lawn-mower blade. The metal cap was not penetrated.

A WORKABLE SAFETY SHOE PROGRAM

Here's how one company successfully promotes a safety shoe program, handles the purchase of safety shoes by employees, and overcomes the problem of over-stocking.

Rufus Carper, an employee of The Timken Roller Bearing Company, knows it wasn't just luck that saved his toes the day he was mowing the lawn at his home in North Industry, Ohio. It was common sense that made him wear his safety shoes. Turning to warn his child from coming too close to the rotary mower he was using, he tripped. The mower came back over his foot. The leather was sheared and one toe bruised, but the steel in his safety shoe wasn't penetrated. Of his experience Carper said, "In my opinion, everyone using a power mower should wear safety shoes. I know I won't mow any more without them on."

Encouraging employees to wear safety shoes on the job as well as for tasks at home is a long-time safety policy of The Timken Roller Bearing Company of Canton, Ohio. It has been carried out by an extensive promotion program and by maintaining a complete line of foot protection equipment.

Promotion of the program is done in a variety of ways. A safety booklet, recently completed, tips off all workers of the importance of steel-toed shoes at work and at home. The employee handbook illustrates the beating safety shoes can take and still protect the feet. Articles on safety, particularly case histories pertaining to foot protection, appear regularly in the company's employee magazine. New employees are carefully indoctrinated on the entire safety program of the company. Colorful posters remind all workers of the soundness of wearing protective equipment. Display cases showing the popular styles of safety shoes are located in all plants. The company has learned that safety performance on the job and at home is up to the individual employee and that the responsibility of the program is the company's.

At the Timken Company's main plants in Canton and Columbus a

Employees may choose from several up-to-date styles of safety shoes.

complete safety shoe store is maintained for all employees. A variety of shoe styles in both oxfords and high tops are stocked. The brands are from leading, established manufacturers. An employee, skilled in the fitting of foot wear, operates the store. Workers may go to the store on company time to buy shoes. All are sold at cost. About 375 pairs are sold monthly.

A pay advance system permits employees without funds to buy shoes without immediate payment. New employees have the price of the shoes deducted from the first full pay and others have the charge deducted from their next regular pay. Prices are in the modest range and, at the cost figure, represent an excellent buy.

At the outlying and smaller manufacturing plants two different systems of selling shoes are used. One plant has a mobile unit visit one day a week. Other plants handle the sale of shoes through safety departments.

Selection of Styles

Inventory at one time threatened to become a heavy burden; but by overhauling the system, the value of the stock on hand is about half of what it used to be.

To select a new style of shoe the safety department goes through two important steps before it is added to stock. A style of shoe that fits the standard of craftsmanship, price and attractiveness is selected by the safety department. A trial order is displayed and if, after a reasonable length of time proves popular, it is added to the store's line. Since shoe styles do not stay popular indefinitely, models that become slow moving are placed on sale and the line discontinued.

About a dozen pairs of each style and size are stocked initially. When the number of pairs falls to a set minimum of six, more are ordered to bring the inventory back to the maximum of twelve. This avoids the need of ordering shoes every time a pair is sold and assures an adequate stock without excessive inventory. A blanket purchase order is issued to the shoe store each year to avoid excessive paper work.

A complete record of each sale is maintained. The name of the employee, the style and size of shoe, its price and date of purchase are recorded for each sale. If an employee's safety shoes are ruined by an accident at work, they are replaced with a new pair at no charge.

Since the present system of stocking and ordering was instituted, the store is selling the same volume of shoes with just half the amount of inventory previously required.

The company's medical department uses an orthopedic shoe for employees with foot injuries. This is a formed metal shield that covers the foot.

Wearing safety shoes is not a mandatory rule at the Timken Company except in cases where foot injuries are distinct possibilities. Where an employee is required to wear foot protection to do his work the equipment is furnished by the company.

Heat resistant sandals and wooden clogs are used in the steel mill, and safety toed boots serve a variety of purposes.

The foot protection program, its promotion and administration, is one of the reasons the Timken Company's injury rating consistently remains below the national average.

Pictures by courtesy of Timken Roller Bearing Co.

"Hard Hats" Theme of Safety Week

The Institute of Scrap Iron & Steel Inc., national association for the iron and steel scrap industry, has announced the establishment of an annual Safety Week in the Scrap Industry, to be held this year during the week of October 19. The theme will be "Hard Hats."

Purpose of Safety Week in the Scrap Industry is to provide greater incentive for scrap yard employees to work safely by observing the rules of safety established by management. The week-long drive is also aimed at persuading additional scrap yards to undertake safety programs.

The theme "Hard Hats" was chosen for the first year as a means of impressing on management and workers that safety hats should be worn at all times in scrap yards. Each year an additional item of safety equipment will provide the theme of Safety Week.

The Institute currently holds an annual Safety Contest for its members starting in January and concluding October 31, and provides safety program materials. Under the impact of the safety program, many member companies have been successful in reducing accident rates, thereby making substantial cuts in compensation insurance costs. The Institute has won two awards from the National Safety Council for its safety programs.

47th Safety Congress Held This Month

"Safety in the Sixties"—a forecast of things to come in safety in the next 10 years—will be the theme of the 47th National Safety Congress, annual convention of the National Safety Council.

The Congress, the world's biggest safety show, will be held in Chicago Oct. 19–23, and will attract an expected 12,500 safety specialists from the United States, Canada and several foreign countries.

It will feature 300 sessions on all forms of safety—from aeronautical to wood products—and 900 program participants. Congress speakers, the nation's leaders in every field of activity, will base their safety remarks on the previews of life in the coming decade.

Highlight of the Congress will be the annual banquet Oct. 20 which will bring 2,000 persons to the grand ballroom of Chicago's Conrad Hilton Hotel.

Banquet speaker will be E. J. Thomas, chairman, Goodyear Tire & Rubber Co., Akron, Ohio. Among the other prominent persons scheduled to appear at the Congress are James P. Mitchell, secretary of labor, Washington, D. C.; Bertram D. Tallamy, federal highway administrator, Bureau of Public Roads, Washington, D. C.; and Paul L. Phillips, president, United Papermakers & Paperworkers, Albany, N. Y.

The hundreds of Congress sessions will be held in eight of Chicago's largest hotels, and there will be nearly 200 exhibits of safety equipment and materials.

Brig. Gen. C. E. Jung, Commander, Dayton Air Force Depot, watches approvingly as Paul Gross, Ground Safety Director, prepares to pull the one disabling injury for June from the Depot's Accident Record Board, outside the cafeteria.

Is There A Hole in Your Safety Program?

The Dayton Air Force Depot found that a lack of safety personnel at the median level was creating a vacuum which became a breeding ground for accidents. Here's how they trained additional safety men from their own personnel and firmed up their safety program.

Safety for the men and women paid by your tax dollar has been increased 500 percent at Dayton Air Force Depot, Brig. Gen. C. E. Jung, Commander, announced recently. And it has been done without adding a single employee to the Depot's Ground Safety Office.

Late in 1958 the appalling ratio of two Ground Safety men to 5,000 DAFD workers sparked DAFD's officials into getting more safety coverage. Limited by a restriction on the number of people they could hire for the Ground Safety Office, Paul Goss, Ground Safety Director, and Col. A. A. Denton, Commander at that time, decided to bolster the office from within the Depot.

Goss outlined and taught a 10-hour course in Ground Safety to 110 supervisors on the Depot, completing the course Nov. 21, 1958. Of these 110, 10 were picked to assist Goss and represent him in their various areas. These 10 men swelled the Ground Safety men from 2 to 12 and made the Ground Safety campaign more active throughout the Depot.

It is necessary to have preventive maintenance teams for servicing buildings and equipment at the Depot. So, reasoned DAFD Safety people, why not have preventive accident teams for serving people?

The 10 men picked to aid Goss were selected because they were sincere, interested in the welfare of others and respected by their fellow workers. They then received additional training in safety precautions. To keep them alert, Goss meets with these 10 men monthly. The instructions and information they receive are disseminated to the employees within their areas.

Statistics reflect the advantage of this type of safety coverage. For the last six months of 1958, DARD's cost per capita for injuries was $8.61. For the first five months of 1959 that cost was pared to $.79 per capita. In the Air Force, any personal injury requiring dispensary

(Continued on page 18)

how does your plant safety-rate?

Workers employed by member companies of the National Safety Council were hurt less often in 1958 than in 1957, but the injuries they suffered were slightly more severe.

That fact along with the entire industrial injury rates for Council member companies, is contained in the 1959 edition of "Accident Facts," the Council's recently published statistical yearbook.

Of the 40 basic industry classifications, 28 had reduced injury frequency rates or showed no change, while 22 had lower injury severity rates.

The average injury frequency rate for employees of industrial concerns submitting company reports to the Council (based on the number of disabling injuries per million man-hours worked) was 6.17 in 1958, down 2 percent from the previous year and making an all-time low. It was the fourth time in history that the all-industry rate fell below 7. The rate was 53 percent lower than the average rate for the five pre-war years, 1935–1939.

The communications industry again led the field with a low employee injury frequency rate of .97. Electrical equipment was second again with 1.76, while aircraft manufacturing's 2.18 placed it third again.

The average injury severity rate for industries reporting to the Council (based on the number of days lost from work per million man-hours worked) was 744 in 1958—up 1 percent from 1957. The rate was 52 percent lower than the average rate during 1935–39.

For the third consecutive year, communications was best in the severity column with an 85 rate. Service industries placed second with 124, electrical equipment third with 190.

On the following page is a table showing the frequency and severity rates for the 40 basic industry classifications in 1958, with the percent change from their 1957 rates.

1958 Injury Rates by Industry

(As Reported to the National Safety Council)

In the table of injury rates, the frequency rates are for disabling injuries per million man-hours. A disabling injury is one that results in the complete inability of an injured person to perform his usual activities for a period of at least 24 hours after the time of the injury, or that results in some permanent impairment.

In the column for the severity rates, the figures represent the time charges (in days) lost per million man-hours worked.

Industry	Freq. Rate	% Change From 1957
Communications	.97	−3
Electrical Equipment	1.76	−6
Aircraft Manufacturing	2.18	+2
Automobile	2.44	−5
Rubber	2.81	+3
Steel	3.21	−8
Cement	3.30	+17
Chemical	3.56	0
Textile	3.72	−24
Misc. Manufacturing	4.27	−12
Glass	4.29	−24
Shipbuilding	4.37	−3
Storage & Warehousing	4.43	+32
Sheet Metal	4.63	−8
Railroad Equipment	4.76	−24
Service	4.90	−14
Machinery	4.91	−12
Wholesale & Retail Trade	5.69	−29
ALL INDUSTRIES	6.17	−2
Electric Utilities	6.39	0
Nonferrous Metals & Prod.	6.54	−6
Pulp & Paper	6.97	−3
Petroleum	7.00	−1
Printing & Publishing	7.05	+8
Tobacco	7.20	+69
Gas Utilities	8.07	0
Iron & Steel Products	8.08	−14
Foundry	8.45	−8
Leather	8.57	−9
Meat Packing	8.70	+5
Clay & Mineral Products	9.14	−16
Wood Products	9.84	−12
Food	10.38	0
Quarry	11.95	−12
Transit	12.14	−16
Air Transport	15.09	+3
Mining, Other Than Coal	15.23	−19
Construction	16.99	−14
Lumber	22.14	+1
Mining, Coal	27.39	+33
Marine Transportation	33.23	+26

Industry	Sev. Rate	% Change From 1957
Communications	85	+21
Service	124	+11
Electrical Equipment	190	−17
Misc. Manufacturing	242	−31
Automobile	247	−24
Aircraft Manufacturing	247	+25
Printing & Publishing	298	−32
Wholesale & Retail Trade	333	−11
Tobacco	338	+105
Machinery	372	+2
Textile	382	+15
Rubber	387	−1
Leather	394	+143
Meat Packing	404	−8
Railroad Equipment	452	−24
Glass	453	−21
Air Transport	535	−15
Chemical	552	+3
Sheet Metal	556	+3
Storage & Warehousing	578	+641
Transit	612	−31
Wood Products	674	+10
Pulp & Paper	675	−3
Gas Utilities	683	+48
Petroleum	704	−1
Steel	728	−9
Foundry	732	−13
ALL INDUSTRIES	744	+1
Shipbuilding	746	+9
Food	785	+32
Iron & Steel Products	836	−4
Nonferrous Metals & Prod.	1032	−20
Electric Utilities	1065	−23
Clay & Mineral Products	1110	+41
Marine Transportation	1214	−7
Cement	1428	+11
Construction	2538	−3
Lumber	2611	−8
Mining, Other Than Coal	3950	+2
Quarry	4168	+61
Mining, Coal	5975	−14

Another Accident Checked

Fast Payoff for Ladder Safety Device

All safety equipment more than pays for itself, generally over a period of time. It is particularly noteworthy when safety equipment prevents an accident or injury the very first time it is used. That is exactly what happened when the U. S. Coast Guard installed a safety rail on a 625-foot tower.

As described in the Coast Guard's "Engineer's Digest," the safety rail was installed on and parallel to the ladder and on it runs a ratchet device to which the ladder user's safety belt is attached. The device is designed to present minimal interference to normal climbing up or down, but to clamp on the rail securely if the climber slips or starts to fall. The safety device limits his fall to only a few inches. Here is what happened:

Routine inspection of the 625-foot tower, from the ground, revealed that obstruction lights at the 375- and 500-foot levels were extinguished. It was deemed necessary to replace the light bulbs at the earliest possible moment. Extremely poor weather conditions for a period of two days precluded work on the tower. On the third day weather conditions improved to a point where it appeared that work on the tower could be initiated without undue hazard. At this time there was a low hanging fog, and surface winds were about 5 mph.

Two reliable and competent men were selected to climb the tower to replace the burned out lamps. They were equipped with the safety belts provided with the ladder safety rail. At the 100-foot level, the fog had cleared. Wind velocity increased greatly as the men climbed higher on the tower. All surfaces of the tower were wet because of the high humidity.

The lamps at the 375-foot level were changed without incident. As the lead man reached the 450-foot level, a strong gust of wind struck him, causing him to lose his footing. Because of the suddenness of the incident the man had no opportunity to grab hold of the tower members to prevent his falling. However, the safety belt he was wearing and the safety rail device functioned perfectly, thus preventing a fall to the ground. Although he did not fall, he was hanging upside down along the outer face of the tower. He righted himself and regained his footing on the ladder. After resting and ascertaining that he had suffered no injury, the man continued his ascent to the 500-foot level and there changed the lamps.

Pictures by courtesy of U. S. Coast Guard.

Insulation Information Center Founded

An Insulation Information Center for consultation by industry on insulation characteristics, application techniques, and specifications, has been established by the newly formed National Insulation Manufacturers Association, 441 Lexington Avenue, New York 17.

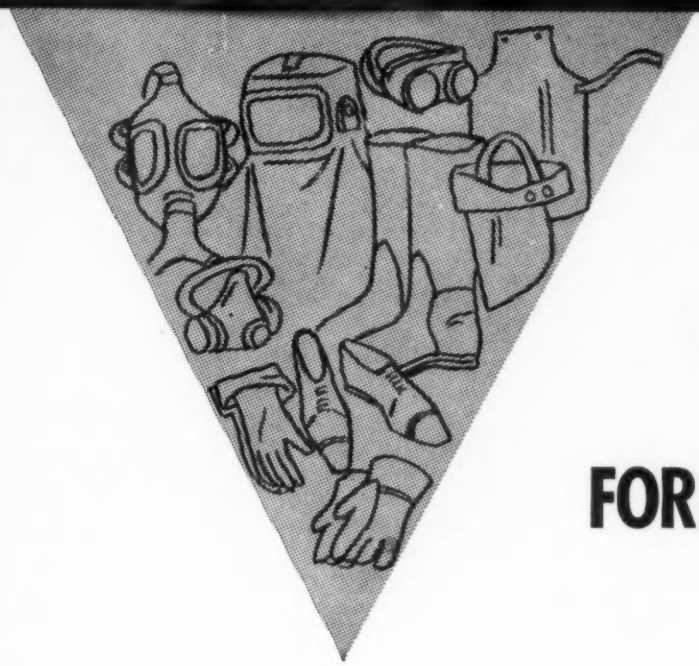
The service will be in charge of John M. Barnhart, association executive secretary, and Raymond C. Parlett, who has just been appointed technical adviser and chairman of the association's technical and research committee.

NIMA represents companies who belonged to two organizations now dissolved—Industrial Mineral Insulation Manufacturers Institute and Magnesia-Silica Insulation Manufacturers Association—as well as other members.

"The prime reason for NIMA's formation is to give industrial and commercial users of insulation up-to-date information about all insulating materials," Barnhart said. "Our association committees have access not only to NIMA studies and the research laboratories of their own companies but to data of the American Society for Testing Materials, American Society of Heating, Refrigerating Air Conditioning Engineers, the Building Research Advisory Board, and other societies."

Barnhart is a former instructor in thermodynamics, heat transfer, heat power, and hydraulics at Rensselaer Polytechnic Institute, from which he holds a degree in mechanical engineering. Prior to entering association work six years ago, he worked as a design engineer for Western Electric Company and the New York Central Railroad.

Parlett has had 40 years' experience in industrial thermal insulation, covering research and development work as an engineer and department head. He is a graduate of the University of Wisconsin. A licensed professional engineer in New York, Parlett has served as an adviser to the ASTM's C-16 committee on thermal insulation. He has been a representative to the National District Heating Association for many years and will continue to work with that group.



SAFETY EQUIPMENT FOR HANDLING

Hydrocyanic Acid

The correct usage of personal protective equipment for hydrocyanic acid requires the education of the worker in proper employment of the equipment available to him. Under conditions which are sufficiently hazardous to require personal protective equipment, its use should be supervised and the type of protective equipment selected should be capable of control over any potential hazard.

The following personal protective equipment should be used when indicated.

Eye Protection

The probability of an eye injury alone, from exposure to hydrocyanic acid in liquid or gaseous form and not accompanied by toxicity from inhalation or absorption, is remote. However, if there is any doubt at all as to exposure to hydrocyanic acid a full face piece gas mask must be worn. It is important that employees understand that the use of a full face mask does not prevent the absorption of hydrocyanic acid through the skin.

Respiratory Protection

Respiratory protective equipment must be carefully maintained, inspected, cleaned and sterilized at regular intervals, and always before use by another person.

(a) **Self-contained Breathing Apparatus** which permits the wearer to carry a supply of oxygen or air compressed in the cylinder and the self generating type which produces oxygen chemically allows for greater mobility. The length of time a self-contained breathing apparatus provides protection varies according to the amount of air or oxygen supply carried. Compressed oxygen should not be used in tanks or other confined spaces.

(b) **Positive Pressure Hose Masks** supplied by externally lubricated blowers. Since these masks depend on a remote air supply, they should be used only where conditions will permit safe escape in the event of air supply failure. Care must be taken to locate the blower air source in an area which is free of air contaminants.

(c) **Air-line Masks** supplied by plant compressed air are suitable for use only where conditions will permit safe escape in case of failure of the compressed air supply. Such masks should be used only in conjunction with a suitable reducing or demand-type valve, excess pressure relief valve, and filter. The compressed air should be checked frequently to make certain that harmful gases from the decomposition of the lubricating oil used in the compressor, or impure air supply, are not present.

(d) **Industrial Canister Type Gas Masks,** equipped with full face pieces and approved by the United State Bureau of Mines, fitted with the proper canister for absorbing hydrocyanic acid vapor, will afford protection against concentrations of hydrocyanic acid not exceeding 2 percent by volume when used in accordance with the manufacturer's

The accompanying material is from "Chemical Safety Data Sheet for Hydrocyanic Acid" published by the Manufacturing Chemists' Association, Inc. The complete data sheet, in addition to this information on personal protective equipment and fire fighting, outlines the properties, hazards, engineering control, employee safety, handling and storage, tank and equipment cleaning and repairs, waste disposal, medical management, and first aid. Copies of the complete data sheet (SD-67) are available at 30¢ each from: Manufacturing Chemists' Association, Inc., 1825 Connecticut Ave., N.W., Washington 9, D. C.

instructions. The oxygen content of the air must not be less than 16 percent by volume. The masks should be used for relatively short exposure periods only, such as may be required for emergency exit from a contaminated area. They are not suitable for use in entering a contaminated area since the actual concentration is unknown and may be very high.

Head Protection

It is desirable to wear a brimmed felt hat or safety hat.

Foot Protection

Rubber shoes with built-in steel toe caps are recommended for workers handling hydrocyanic acid and cylinders or boxes containing cans of absorbed hydrocyanic acid. Rubbers may be worn over leather safety shoes.

Body, Skin and Hand Protection

Because hydrocyanic acid may be absorbed through the skin, persons entering a gas-filled area for emergency purposes must wear a gas-tight garment, such as those designed for gas decontamination squads during the war, in addition to the prescribed respiratory protection. Gas tight suits are available commercially.

Men making emergency repairs on pipelines, valves or other equipment should be protected by suits made of rubber or suitable protective material to provide complete body protection against hydrocyanic acid liquid or gas.

Rubber gloves should be worn to protect the hands when handling samples or otherwise contacting hydrocyanic acid.

Life harness and life line should be worn by men working in tanks or other confined spaces to facilitate rescue.

Where hydrocyanic acid is manufactured, used in commercial process or for fumigation purposes, provision for personal cleanliness should be provided and time allowed for thorough washing before eating meals and at the end of the day.

Clothing which has become wet by hydrocyanic acid should be removed at once and contaminated skin should be flooded immediately with large amounts of flowing water. Safety showers at strategic locations are essential for treating persons splashed by liquid hydrocyanic acid.

Fire Fighting

Firemen should bear in mind that the toxic properties of the HCN liquid or gas might well present a much greater hazard than the fire from the burning gas, and should proceed accordingly.

Fire fighters should approach the fire from upwind, and should wear self-contained breathing apparatus and complete body protection. If complete impervious body protection is not available they should wear self-contained breathing apparatus and complete firemen's clothing (rubber coats, boots and helmet) and should work in relays.

If HCN is burning at a leak in equipment, or from a spill, and the flame does not endanger area exposures, it may be best to let it burn and control the fire by water spray.

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"I don't care who you are, Mac! When you're in here, you gotta wear safety glasses."

Hole In Your Program?

(from page 13)

treatment costs the installation a minimum of $7.

Goss has been in safety work for 37 years and has received awards for outstanding Ground Safety performance from USAF, Washington, D. C.; Air Materiel Command, Wright-Patterson AFB, Ohio; and the National Safety Council.

An outline of Goss' Supervisors Safety School course follows:

1. Accident costs to date: Each injury treated at the dispensary costs $7.
2. Prime accident causes: Running, jumping, improper lifting, falls and burns, misuse of tools or using the wrong tool.
3. Of the accidents, 95 percent were due to human failure; 2.5 percent were due to machine failure; 2.5 percent were an act of God.
4. There are 100 potential hazards in your home. Some of these are throw rugs, articles on stairway, and overloaded electrical circuits. These require daily inspection and this "good housekeeping" carries over to the job. In offices we should keep an eye out for: exposed or loose wires, chairs or waste baskets in aisles; fans (large fans must be seven feet above floor), opened desk and file drawers, butts and ashes in waste baskets, extension cords for calculators and typewriters not removed when machine is idle, overloaded electrical circuits.

   Have safety meetings with employees once a week.
5. Always go to the dispensary when injured. All accidents must be recorded to enable injured person to collect Government compensation.
6. Safety: Use common sense;
   Think;
   Do things the correct way . . . the safe way;
   If not sure, ask;
   Minor injury is a warning, it could have been serious;
   Accidents don't happen, they are caused;
   Tension makes a person more susceptible to accidents.
7. Safety films are available for showing to employees. The Depot Safety Bulletin is distributed twice monthly. Safety Reports should be posted once each month. A free first aid course is offered by the Depot Safety Engineer. All personnel are required to wear safety glasses in dangerous areas.

Armortred NEOPRENE Cord Soles and Heels

NEW SAFETY and WORK SHOE SOLE BY QUABAUG

By Invitation Member

Emblem of BUSINESS CHARACTER

Rice Leaders of the World Association

Represents High Standing in NAME - PRODUCT - POLICY

DUPONT NEOPRENE TIRE CORD

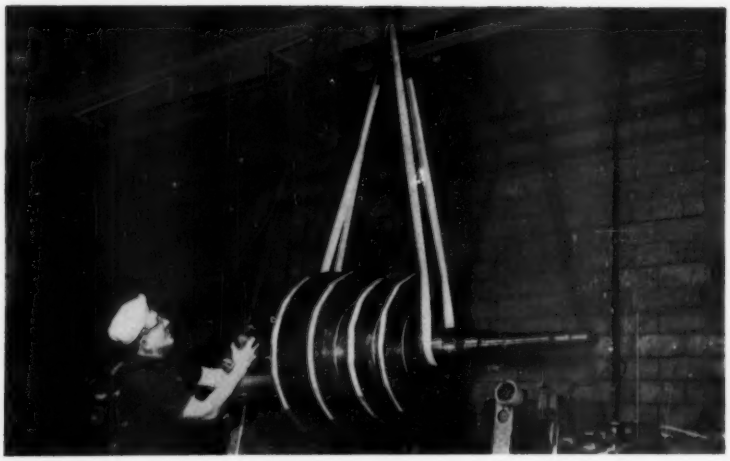
Combined for Protection against
OILS—HEAT—ACIDS
LONG RUGGED WEAR
and a SAFE SURESTEP
SMART for STYLE
14 & 18 IRON BLACK or BROWN
with or without Red Label

ANOTHER FINE PRODUCT BY QUABAUG—CRAFTSMEN IN SAFETY, WORK and DRESS SHOE SOLES

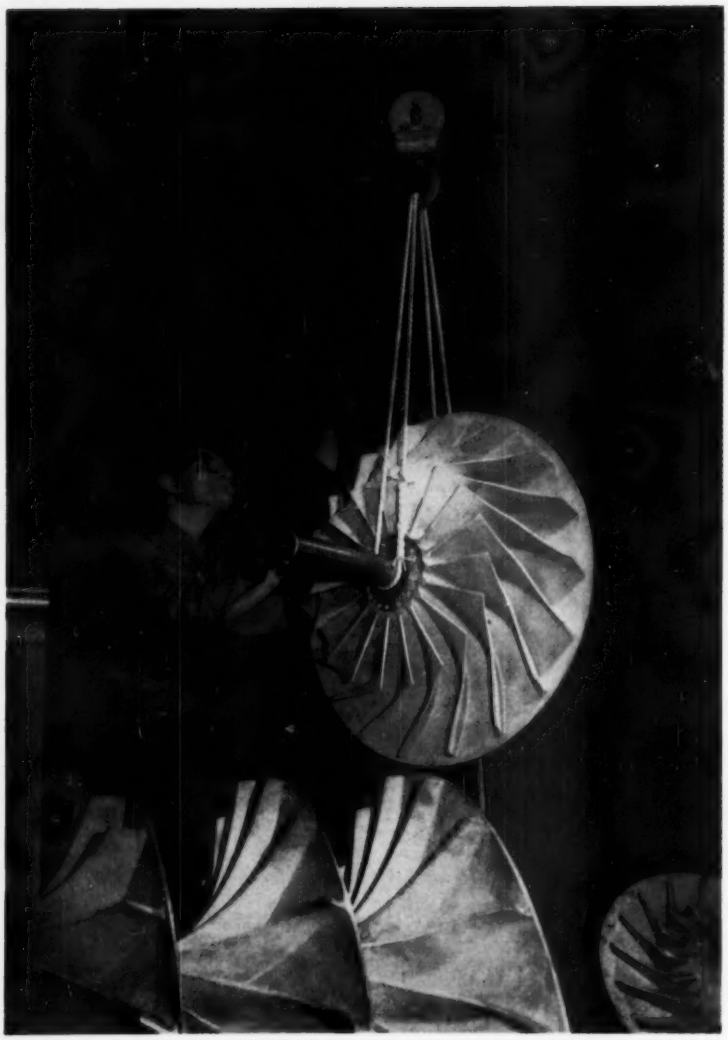
There is no short cut to quality

MANUFACTURED AND DISTRIBUTED BY **QUABAUG RUBBER COMPANY** NORTH BROOKFIELD, MASSACHUSETTS

(For details, use Key # K-8 on card on page 71)



At the Carrier Corporation, a nylon webbing sling carries a 1,500 pound impeller as well as shaft assembly.



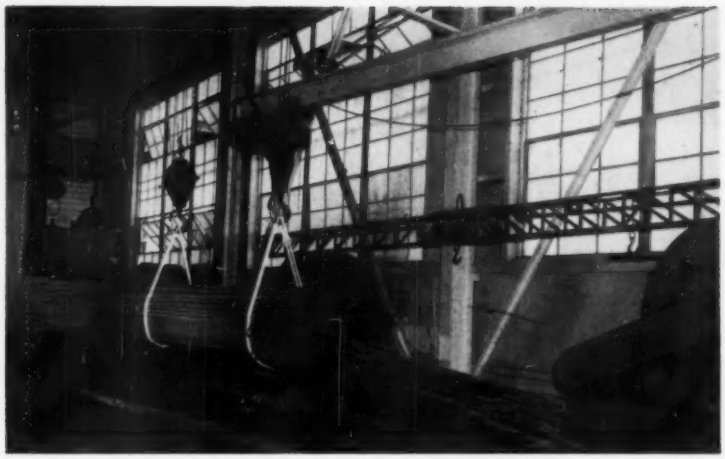
At the Carrier plant, nylon rope sling carries an impeller wheel for compressor.

Handling bulky materials, whether they be steel tubing, compressor shafts or beef on the hoof, is likely to call for rope. And rope, one of man's most ancient tools, is better able to serve him these days than ever.

The reason: With nylon and "Dacron"* polyester fiber, cordage makers are turning out products that are in many ways superior to older ones. Both synthetics are notable for their strength, uniformity, and rot and mildew resistance, qualities that enable them to stand off rope's traditional enemies. In general, nylon ropes are well over twice as strong as manila ones of comparable size, and ropes of "Dacron" are about twice as strong.

While this may be old stuff to mountain climbers, cowboys and sailors, the performance of synthetic cordage is not so well known in industry, partly because the jobs it can do are so diverse that they're difficult to pinpoint. But here are a few of the ways industry is using synthetic fiber ropes: nylon or "Dacron" slings, some of cordage, others of webbing, to transport machine parts where the slings are in contact with coolants; "Dacron" slings for use around pickling tanks; shovel lines of "Dacron" in the unloading of grain barges; bridgemen's safety lines made of nylon; heavy-duty nets of both materials. A recent improvement in synthetic cordage is the development of a new nylon, Type 707, that boosts a

* Registered Du Pont trademark.



At Pacific Tube Company, 5,000 pounds of stainless steel tubing go through pickling solution in Dacron slings.

How Good Are Synthetic Fiber Ropes?

rope's breaking strength about 16 percent above that of regular nylon.

The following material, furnished by Du Pont, outlines the general properties of ropes made from nylon and "Dacron."

1. Strength

Ropes of new Du Pont Type 707 nylon are about 16 percent stronger than those of regular (Type 300) nylon and are more than twice as strong as comparable size manila ropes. Ropes of "Dacron" are about twice as strong as equivalent size (diameter) manila ropes. The wet strength of ropes made of Type 707 nylon is about 90 percent of the dry strength; ropes of "Dacron" lose no strength when wet. A typical 5½ inch (circumference) rope of Type 707 nylon has a dry break strength of 87,000 pounds and a wet break strength of 77,500 pounds. Federal specifications call for a minimum break strength for equivalent size manila rope of 26,500 pounds.

2. Elongation

When new ropes are loaded for the first few times, the fibers comprising the rope compact to a certain extent and the rope becomes slightly longer (2 to 7 percent) permanently. After the "breaking-in" period, ropes usually maintain this new length unless they are subsequently overloaded.

Nylon ropes elongate more under load than ropes of "Dacron" or manila ropes. Nylon ropes show a high degree of elasticity or ability to recover quickly to original length.

At working loads, ropes of "Dacron" have only slightly greater elongation than dry manila and have less elongation than wet manila.

The average elongations of "broken-in" ropes of nylon, "Dacron," and manila at normal working loads of 20 percent of break strength are as follows:

Average Elongation (%) of Ropes at Normal Working Loads of 20% of Break Strength

	Dry	Wet
Nylon	14	**
"Dacron"	5.5	**
Manila	3	10

** Nylon ropes usually stretch slightly more when wet than when dry, while ropes of "Dacron" stretch the same wet or dry.

The elongation of a rope under actual service conditions usually is considerably less than its ultimate breaking elongation. This is particularly so in the case of nylon rope which elongates about 10 to 14 percent at normal working loads and over 40 percent at loads up to its breaking strength. It is important, therefore, to consider the conditions of loading when estimating how much a rope may stretch.

The stretch of synthetic fiber ropes, as well as natural fiber ropes, varies slightly with the type of rope construction, hardness, and the manner in which they have been used.

3. Shock Absorbency

Under shock loading conditions, nylon rope will absorb about 15,000

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foot-pounds of energy per pound of rope while rope of "Dacron" will absorb about 7,000 foot pounds per pound. On a comparative basis this means that nylon rope absorbs about 8 times more energy than manila rope and 4 times more than steel wire rope on an equal size (diameter) basis. On an equal strength basis, nylon rope absorbs shock about 2.5 times better than manila rope and 16 times better than wire rope.

Ropes of "Dacron," despite their low stretch at normal working conditions are about 4.5 and 2.2 times better in energy absorbing properties than manila and steel wire ropes respectively on an equal size basis. Compared on an equal strength basis, rope of "Dacron" is able to absorb 1.8 and 11 times more energy than manila rope and steel wire rope respectively.

4. Resistance to Rot and Mildew

Prolonged exposure has shown "Dacron" polyester fiber and nylon not to be weakened by rot and mildew. Ropes of either fiber can be stored wet without fear of permanent loss of strength.

5. Abrasion Resistance

Ropes of nylon and "Dacron" are about equal in their resistance to abrasion. In cases of constant use over normal surfaces, ropes from either fiber will outlast natural fiber ropes many times. One of the main contributing factors to long service life is that the surface filaments on synthetic fiber ropes, when abraded, form a protective fuzz which shields the inner fibers. For this reason, ropes of nylon or "Dacron" should not be discarded on a casual inspection of the surface. (The rope retains a percentage of its original strength approximately proportional to the total number of unabraded yarns in the cross section.) Rough or sharp edges will rapidly abrade any rope and it is important to keep all working surfaces which contact the rope in good condition.

6. Chemical Resistance

Because of their good resistance to many chemicals, ropes of nylon

(Continued on page 51)

STEPS TO SAFETY

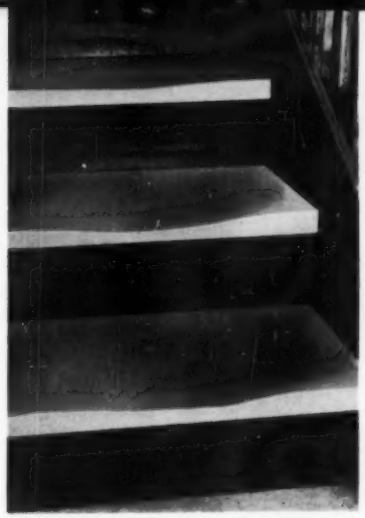
by **JAMES E. BLY**
Wooster Products, Inc.
Wooster, Ohio

Invariably, one of the first items on any safety check sheet is stairs. Everyone knows that a fall on stairs can be very serious or even fatal; and yet such temporary or inadequate safety measures often are taken that worn or slippery stairs exist in almost every multiple story building.

Stair treads receive more grinding wear than any other walking surface of the building. In most plants an actual count of the traffic moving over the stairs from one floor level to another would add up to thousands daily, to millions of foot steps in the course of a year. Stairs soon begin to wear off at the edge. The surface of the steps become smooth. Finally deep recessions are worn in the steps and the stair becomes a menace. (See Figure 1.) The condition of the stair becomes obvious evidence in compensation suits which have been recorded as high as $100,000.00. A fall may have been entirely the fault of the person involved, but lack of safety precaution is managements' responsibility and compensation claims are judged accordingly.

What To Do

When steps start to show wear, immediate action is required. A flight of stairs can be made like new and also slip-resistant in a matter of a few hours by using a leveling compound to fill in worn depressions and by applying aluminum, heavy-duty safety treads.



Worn, slippery stairs can be restored to provide long-wearing walkway safety.

Fig. 1: Worn, "dished" stairs are unsafe.

Fig. 2: Plastic compound levels steps.

Fig. 3: Apply safety treads to steps.

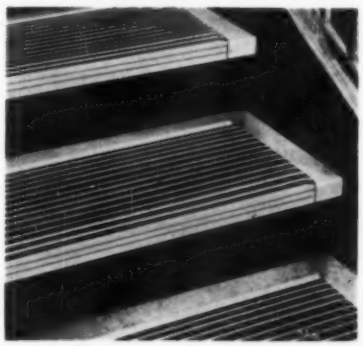


Fig. 4: Repaired steps now slip-proof.

First, the worn area of the step surface is filled in and leveled with a special, fast drying mastic. This material can be feather-edged on the step where the worn area ends and by holding a straight-edge board to the front of the step, a square edge is obtained. As soon as one step is leveled, the board can be removed to the next step since no form is needed to hold the mastic in place. (See Figure 2.)

The mastic dries in a few hours. The steps now have a level surface and are capped with safety treads to complete the job.

Heavy-duty anti-slip safety treads are available made of aluminum alloy with dove-tailed recesses which are filled with diamond-hard abrasive minerals similar to the material used in the manufacture of grinding wheels. They have a flat, easy to clean surface. These safety treads are so tough that they cannot be cut with a hack saw. The safety treads come in a standard 9" width (front to back) to fit all steps up to 14" wide and in lengths as required. Standard practice is to order the safety treads 4" less in length than the over-all length of the steps to allow 2" of margin at each end when centered on the step. The aluminum safety treads come with a double row of holes drilled and countersunk for fasteners.

The safety treads in length to fit the stair, the mastic, adhesive, and fasteners are complete in a package unit ready for easy installation by the plant maintenance department.

If the steps are of wood, the aluminum safety treads are simply placed in position and fastened

(Continued on the next page)

A SAFETY IDEA

Fume Scrubbers Prevent Air Pollution

More and more, industry is finding it cannot stay remote from its neighbors—rapid residential expansion is bringing neighbors right up to its gates. Therefore, to maintain good community relations, industry is striving to eliminate atmospheric pollution by achieving efficient control of its fumes. This accounts for the great industry interest in successful solutions to fume problems.

Morton Chemical Company, at its plant in Ringwood, Illinois, operates several processes releasing fumes which must be prevented from escaping to the atmosphere. Morton sought efficient but simple means for control of these fumes. The several fume sources were at scattered points in the plant, therefore it was necessary to have separate installations in continuous operation, unattended and with a minimum of power consumption and maintenance.

One of the installations is shown in the photo. This is a 12" fume scrubber operating on hydrogen chloride-type fumes released from a batch operation in the manufacture of photographic chemicals. A caustic solution circulated through the scrubber creates the draft required to draw the fumes from the process inside the building, and then neutralizes the fumes. The only power requirement is that of the pump used to circulate the caustic solution.

In operation the caustic is introduced under pressure into the scrubber, through a spray nozzle. The velocity of the caustic spray creates a draft in the scrubber chamber. Intimate contact occurs between fumes and caustic solution, and thorough scrubbing is obtained. The non-condensable washed gases are separated from the liquid in the tank below the fume scrubber and are discharged up the stack to atmosphere. The fume scrubber is constructed of Haveg, a material completely resistant to hydrogen chloride. Since complete neutralization of the fumes occurs during the intimate contact with caustic solution in passing through the scrubber, steel was used for construction of the separator tank and stack.

Picture by courtesy of Schutte & Koerting Co.

Steps to Safety

(from page 23)

down securely with No. 10 noncorrosive screws. (See Figure 3.) If the steps are masonry, marble, etc., corresponding holes are drilled with a $\frac{5}{16}$" masonry bit and lead expansion shields tapped into the holes to receive the screws. To assure a perfectly tight, soundproof installation on masonry stairs, an application of rubber base adhesive is used in addition to the screws.

After the safety treads are installed, the area around the safety treads and the sides of the stair can be painted or refinished to give the entire stairway a brand new appearance. (See Figure 4.)

This method of repairing and modernizing stairs is less expensive than replacing steps and in addition equips the stair with long-wearing safety treads.

In many specific dangerous locations, the anti-slip features of the safety treads have been successfully use-tested, such as at meat packing plants where extremely dangerous conditions exist on stairs in the processing areas. In such hazardous areas, stairs are traveled with ease after being equipped with safety treads. The abrasive material bites through water, grease, oil, etc. to provide a safe, sure footing. The distinctive appearance of the treads also makes them equally suitable for office use as well as for the plant. Exterior stairs should also be made safe.

The heavy construction of the

safety treads assures permanent safety. Once a flight of stairs has been given this safety treatment, they are trouble free for many years. Many plants, school systems, and institutions have set up a stair repair program where at six months or yearly intervals a number of stairs are selected for the safety treatment until all heavy traffic stairways have been made safe. In large organizations where there are dozens of individual stairways, only a systematic program, using permanent materials, can accomplish the desired results.

Pictures by courtesy of Wooster Products, Inc.

THE FUTURE SHOWS

Atlantic City, N. J. *October 19–23*

Eighty-seventh Annual Meeting of the American Public Health Association (Convention Hall). American Public Health Association, 1790 Broadway, New York, N. Y.

Chicago, Ill. *October 19–23*

Forty-seventh Annual National Safety Congress and Exposition (Conrad-Hilton Hotel). R. L. Forney, Secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Columbia, S. C. *November 4–5*

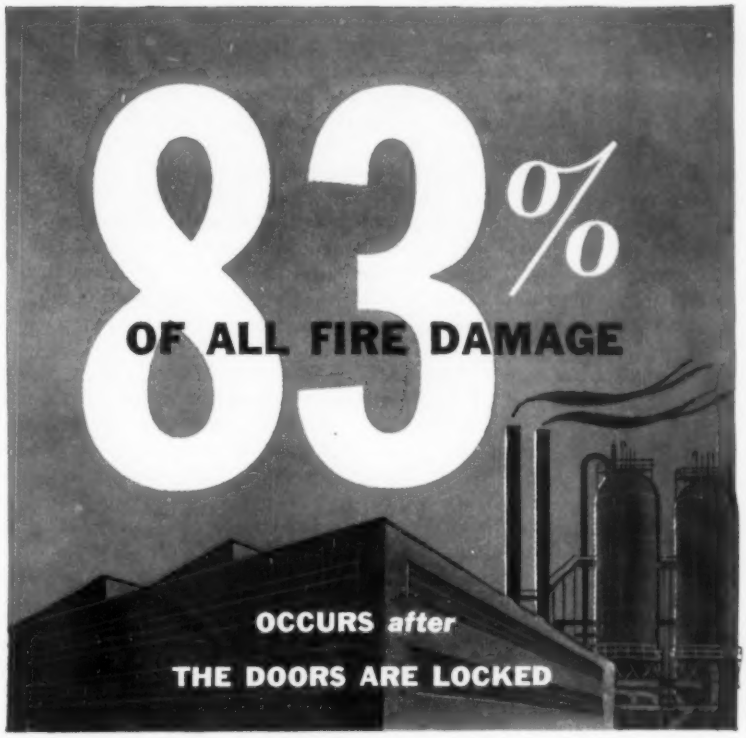
Twenty-second Annual South Carolina Accident Prevention Conference. B. Fred Derrick, Jr., Secretary, % S. C. Industrial Commission, P. O. Box 539, Columbia, S. C.

Philadelphia, Pa. *January 25–28*

Eleventh Plant Maintenance & Engineering Show and Conference (Convention Hall). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

San Francisco, Calif. *February 16–17*

Tenth Annual California Statewide meeting of the Governor's Industrial Safety Conference (Fairmont Hotel). Michael Flagg, Coordinator, % Dept. of Industrial Relations, 965 Mission St. (Room 400), San Francisco, Calif.



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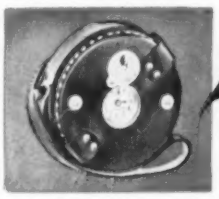

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Fort Wayne, Ind. *March 15–16*

1960 Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, Safety Council Manager, Chamber of Commerce Building, Fort Wayne, Ind.

Los Angeles, Calif. *April 11–13*

Seventh Annual Western Safety Congress and Exhibit (Ambassador Hotel). Greater Los Angeles Safety Council, 3388 W. 8th St., Los Angeles 5, Calif.

Winston-Salem, N. C. *May 4–6*

Thirtieth Annual North Carolina Statewide Industrial Safety Conference (Robert E. Lee Hotel). H. S. Baucom, Director of Safety, North Carolina Industrial Commission, Raleigh, N. C.

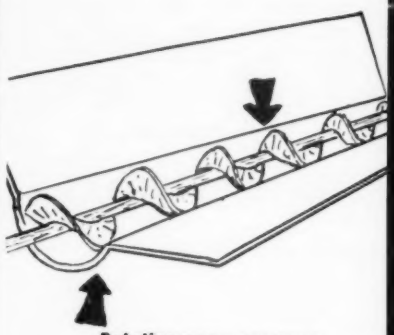
Richmond, Va. *May 5–7*

Virginia Safety Association Conference (John Marshall Hotel). Va. Safety Association, 2501 Monument Ave., Richmond 20, Va.

The material in this article is based on "The Principles and Techniques of Mechanical Guarding" published by the Bureau of Labor Standards, U. S. Department of Labor. The bulletin was compiled by William G. Griffin and Sheldon W. Homan of the Office of Technical Services, under the direction of Robert D. Gidel, Chief, Division of Safety Standards and Services. While it is recognized that mechanical guarding does not constitute the problem in industrial safety that it did years ago (through greatly improved guarding techniques and practices and the installation of direct motor drives), the need for knowledge of good guarding methods still exists. Many old machines are still in use. There are still many machine-caused injuries that are frequently disabling, and they are preventable.

FIGURE 1

Examples of Typical Rotating, Reciprocating, and Transverse Mechanisms



Rotating screw conveyor

All mechanical action or motion is hazardous, but in varying degrees. Rotating members, reciprocating arms, moving belts, meshing gears, cutting teeth, and parts in impact or shear are some examples of the types of action and motion requiring protection. They are not peculiar to any one machine or industry but are basic to the mechanical devices used for productive purposes.

Actions and Motions that Create Hazards

Since safety standards cannot be drawn which will cover every conceivable hazardous mechanical exposure, it is often necessary to use imagination and ingenuity to protect unusual situations. If the basic hazardous actions and motions are understood, it is easier to evaluate the hazard and develop effective control measures whatever the machine. Actions or motions involving the most hazardous exposures may be classified as:

Rotating, Reciprocating and Transverse Motions

In-Running Nip Points

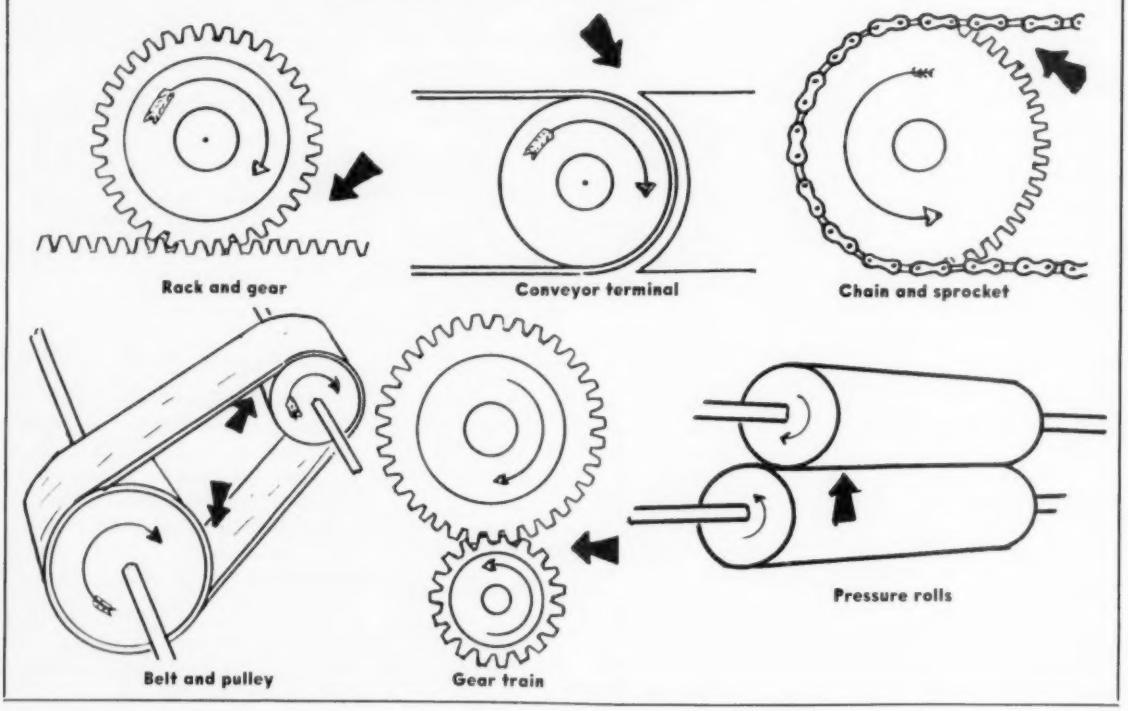
Cutting Actions

Punching, Shearing and Bending Actions

A discussion of these actions or motions, along with typical illustrations of each, follows:

The

FIGURE 2: Examples of Nip Points



Rack and gear

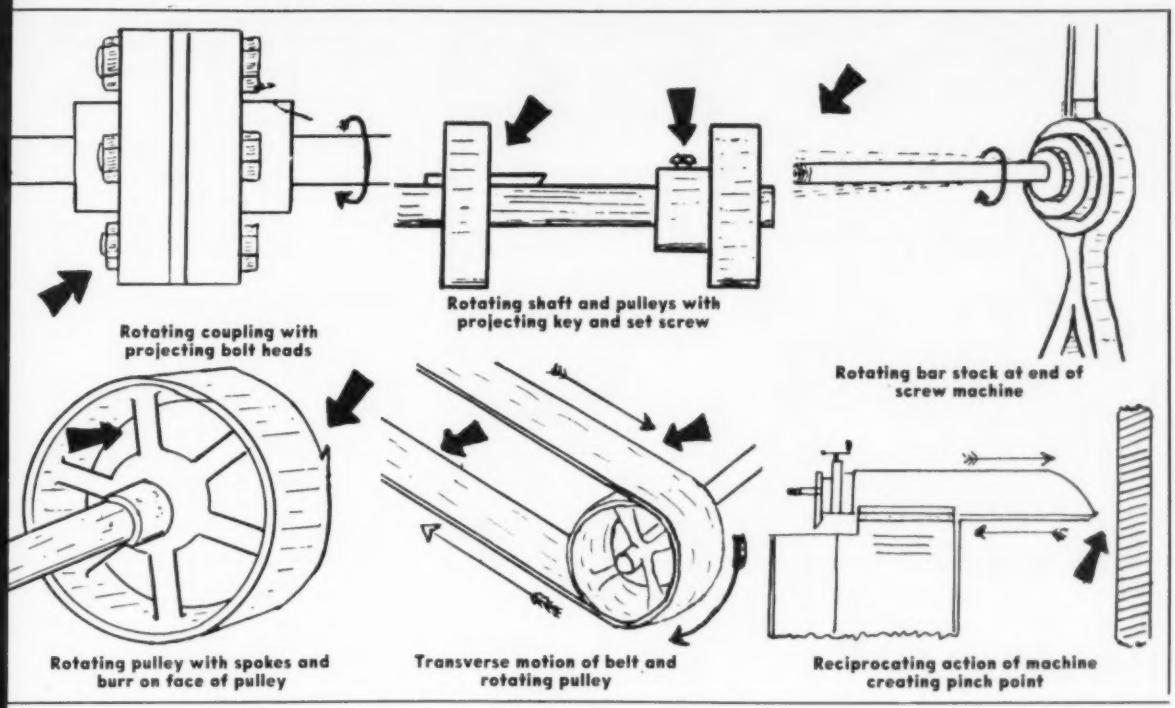
Conveyor terminal

Chain and sprocket

Belt and pulley

Gear train

Pressure rolls


Rotating coupling with projecting bolt heads
Rotating shaft and pulleys with projecting key and set screw
Rotating bar stock at end of screw machine
Rotating pulley with spokes and burr on face of pulley
Transverse motion of belt and rotating pulley
Reciprocating action of machine creating pinch point

Principles of Machine Guarding

Rotating, Reciprocating and Transverse Motions: Rotating, reciprocating and transverse motions create hazards in two general areas —at the point-of-operation where work is being done, and at the points where power or motion is being transmitted from one part of a mechanical linkage to another. Since guarding at the point-of-operation will be discussed under other classifications of action or motion, this section will be devoted primarily to situations where power is being transmitted or the point-of-operation is not clearly defined (extractors, mixers, etc.).

Any rotating object is dangerous. Even smooth, slowly rotating shafts can grip clothing or hair, and through mere skin contact force an arm or hand into a dangerous position. Accidents due to contact with rotating objects are not frequent, but the severity of injury is always high.

Collars, couplings, cams, cluthes, flywheels, shaft ends, spindles, rotating bar stock, lead screws, and horizontal or vertical shafting are typical examples of common rotating mechanisms which are hazardous. (See Figure 1.) The danger increases when bolts, oil cups, nicks, abrasions, and projecting keys or screw threads are exposed when rotating.

In many cases, the rotating mechanism is located within a stationary case or shell and consists of a revolving cylinder, a screw, agitator blades, or paddles. Washing machines, extractors, raw material mixers, and screw conveyors are typical examples of this type of hazardous rotating mechanism.

Reciprocating or transverse motions are hazardous because, in the back and forth or straight line action, a worker may be struck or caught in a pinch or shear point between a fixed or other moving object.

In-Running Nip Points: In-running nip points are a special danger existing only through the action of rotating objects. Whenever machine parts rotate toward each other, or where one rotates toward a stationary object, an in-running nip point is formed. Objects or parts of the body may be drawn into this nip point and be bruised or crushed. (See Figure 2.)

The in-running side of rolling mills and calendars, of rolls used for bending, printing, corrugating, embossing or feeding and conveying stock, the in-running side of a chain and sprocket, belt and pulley, a gear reach, a gear and pinion, and a belt conveyor terminal are typical examples of nip point hazards.

Cutting Action: Cutting action results when rotating, reciprocating or transverse motion is imparted to a tool so that material being removed is in the form of chips. The danger of cutting action exists at the movable cutting edge of the machine as it approaches or comes in contact with the material being cut. Such action takes place at the point-of-operation in cutting wood, metal, or other materials as differentiated from punching, shearing or bending by press action. (See Figure 3.)

Typical examples of mechanisms involving cutting action include

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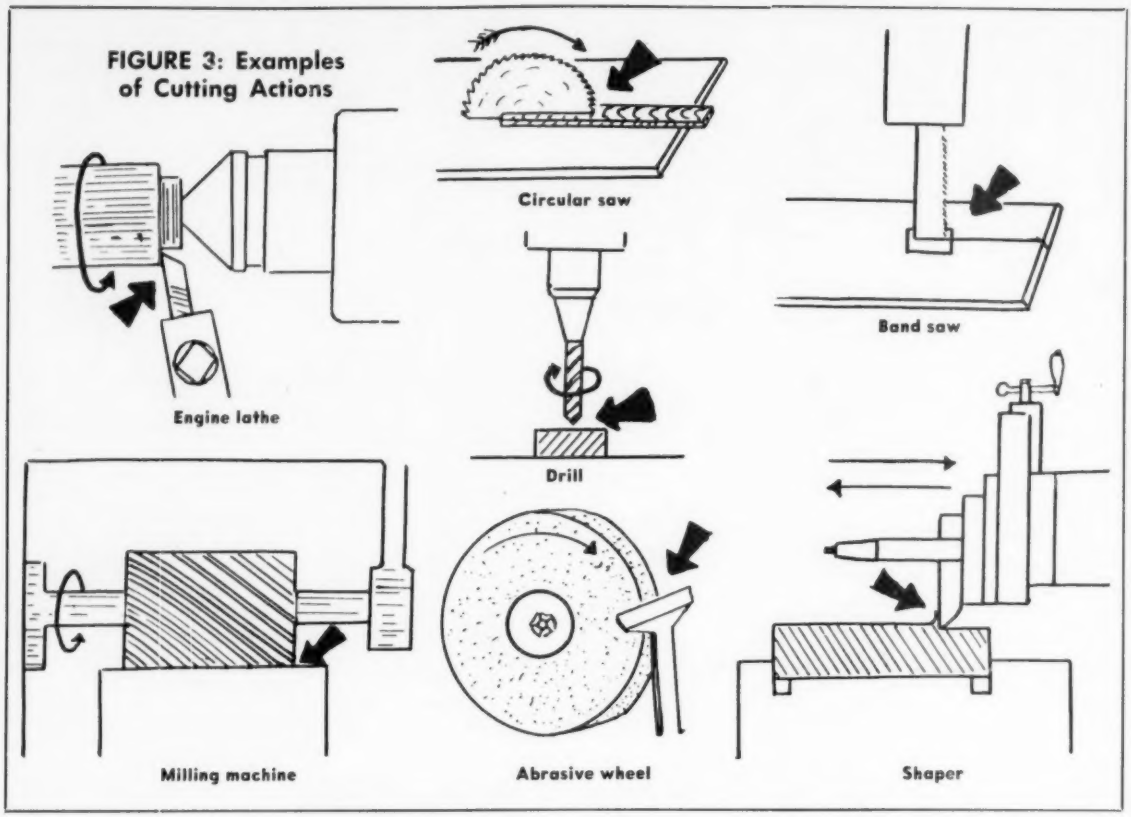


band and circular saws, milling machines, planing or shaping machines, turning machines, boring or drilling machines and grinding machines.

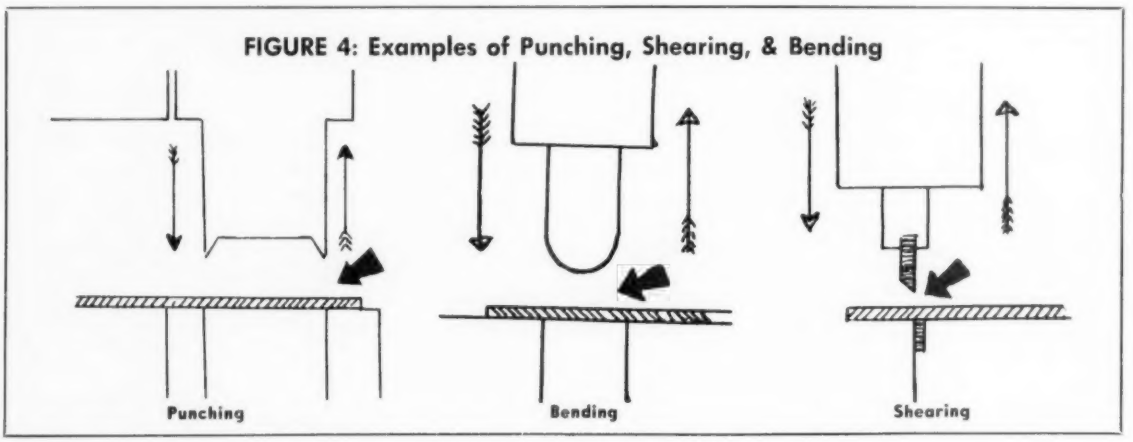
Punching, Shearing and Bending Actions: Punching, shearing or bending action results when power is applied to a ram (plunger), or knife for the purpose of blanking, trimming, drawing, punching, shearing or stamping metal or other materials, as differentiated from removing the material in the form of chips. The danger of this type of actions lies at the point-of-operation where stock is actually inserted, maintained, and withdrawn. (See Figure 4.)

Typical examples of equipment, involving punching, shearing or bending action include power presses, foot and hand presses, bending presses or brakes as well as squaring, guillotine, and alligator shears.

Methods of Guarding Actions and Motions

Whenever hazardous machine actions or motions are used, a means for providing protection for the operator and fellow workers is essential. And, there may be several ways to guard a situation, particularly at the point-of-operation.

This does not mean that certain guarding methods are not preferable to others; but the type of oper-



ation, the size and shape of stock, the method of handling, the physical layout, the type of material, and production requirements or limitations may present important considerations. A certain flexibility in operations may also determine the practicability of the method used.

As a general rule, power transmission apparatus can be protected by fixed enclosure guards. It is when guarding the point-of-operation, where work is being done on an object, that the most effective and practical guard must be selected.

American Safety Standards have been developed to serve as guides for the safe-guarding of many of the most hazardous processing or power transmitting mechanisms. States have developed codes and regulations regarding hazardous machinery, in most cases closely paralleling the American Safety Standards. Whenever State codes or American Standards apply, they should be followed.

The methods of guarding may be grouped under four main classes:

1. **Enclosure Guards**
   a. Fixed enclosures
   b. Adjustable enclosures
2. **Interlocking Guards**
   a. Enclosure or gate guard with electrical or mechanical interlock
   b. Barrier with electrical or mechanical interlock activating a brake
   c. Electronic or other type field or beam connected with operating and stopping mechanism
3. **Automatic Guards**
   a. Moving barrier connected to operating mechanism of machine (push-away)
   b. Removal device connected to operator, and operating mechanism of machine (pull-away)
   c. Limitation of stroke
   d. Automatic pressure release devices
4. **Remote Control, Placement, Feeding, Ejecting**
   a. Two-hand tripping devices (also multiple action)
   b. Automatic or semi-automatic feed
   c. Special jigs or holding devices
   d. Special handtools and dies
   e. Special ejecting devices

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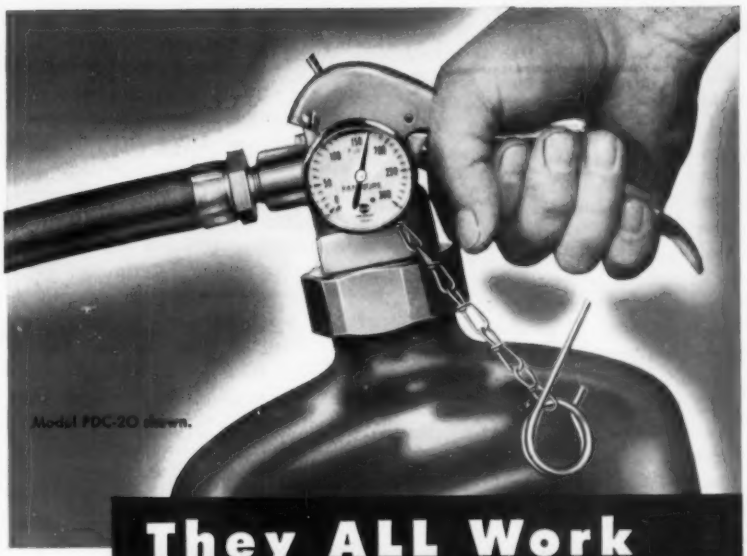

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Fire PROTECTION

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Enclosure Guards

Fixed enclosure guards should be used in preference to all other types. They prevent access to dangerous parts at all times by enclosing the hazardous operation completely. They are also used to restrain bursting machine parts from flying about. They admit the stock but will not admit hands into the danger zone because of limited feed opening size. They may be constructed so as to be adjustable to different sets of tools or dies, but once adjusted they should be fixed.

Enclosure guards may be installed at the point where cutting, bending, punching, or shearing action takes place on material being processed, and at other places where there may be a hazard to men inserting or manipulating stock. They may also be used to prevent contact with rotating, reciprocating and transverse motion of machine members away from the point-of-operation. (See Chart I.)

Interlocking Guards

When a fixed enclosure guard is not practicable, an interlocking enclosure or barrier should be considered as the first alternative.

An interlocking enclosure guard is not fixed and may be opened or removed as the operation requires. However, due to an electrical or mechanical interlocking connection with the operating mechanism, the operation of the machine is prevented until the guard is returned to an operating position and the operator can no longer reach the point of danger.

An interlocking enclosure guard should do three things:

1. **Shut off or disengage the power to prevent the starting of the machine when the guard is open.**
2. **Guard the danger point before the machine can be operated.**
3. **Keep the guard closed until the dangerous part is at rest, or stop the machine when the guard is opened.**

When gate guards or hinged enclosure guards are used with interlocks, they should be so designed as to enclose the point-of-operation completely before the operating clutch can be engaged.

An interlocking barrier guard quickly stops the machine or prevents application of injurious pressure when any part of the operator's body contacts the barrier. The barrier may be a bar, a rod, a wire or some similar device (not an enclosure), extended across the danger zone and interlocked electrically or mechanically with a braking mechanism. Electrical interlocking devices should be so designed that if they fail, they fail safe, making the guarded machine inoperative.

Another type of interlocking barrier may be in the form of an electric-eye beam, a magnetic, radioactive or similar type circuit so designed and installed that when the operator's hand or any part of the body is in the danger zone the machine cannot be operated, or if the hand or any part of the body is inserted while the machine is in motion it will immediately activate a braking mechanism. (See Chart II.)

Automatic Guards

When neither an enclosure guard nor an interlocking guard is practicable, an automatic guard may be used.

An automatic guard acts independently of the operator, repeating its cycle as long as the machine is in motion. This type of guard removes the operator's hands, arms or body from the danger zone as the ram, plunger or other tool closes on the piece upon which the work is being done. It is operated by the machine itself through a system of linkages connected to the operating mechanism.

Common types of automatic guards are sweep and push-away devices which are moving barriers crossing the danger zone when the machine is activated, and pull-away devices consisting of hand and arm attachments which pull the operator away from the danger zone.

Sweep and push-away devices should be designed to prevent the operator from reaching behind and across the protective device into the danger zone before the machine has completed its closing cycle. The device itself should not offer a hazard by creating a shear point between the moving guard and a stationary or moving part of the machine.

Automatic pressure release or pivoting arm devices provide utility, yet protect in running nip point situations. (See Chart III.)

Remote Control, Placement, Feeding, Ejecting

Although they are not guards in the technical sense, there are certain methods which can be used to accomplish the same effect, that is, of protecting the operator from the hazardous point-of-operation. They may be used to complement one of the other types of guards, or may be used in lieu of guards.

Two-handed operating devices may be used to activate the machine. These devices require simultaneous action of both hands of the operator on electrical switch buttons, air control valves, or mechanical levers. On presses with a non-interrupting stroke, two-handed operating devices should require manual operation until a point is reached in the cycle at which the hazard ceases. Hand controls may be interconnected with foot controls to permit operation of the machine. The actuating controls should be so located as to make it impossible for the operator to be able to move his hands from the controls to the danger zone before the machine has completed its closing cycle. The two-handed controls should be so designed as to prevent the blocking, tying-down, or holding down of one control to allow one hand free access to the point-of-operation. When more than one man is working a machine, additional controls should be installed and designed so that all men must simultaneously activate the starting mechanism from remote locations.

Automatic or semi-automatic feeding mechanisms such as roll, plunger, chute, slide and dial feeds, and revolving dies may be used in conjunction with ram enclosures. Special soft metal handtools may be used to place or remove parts, in conjunction with an enclosure, interlocking or automatic guard. Special jigs, holding device and dies may be used to manipulate

(Continued on page 50)

CHART I—Enclosure Guards

Guarding Methods	Guard Actions	Limitations
Fixed Enclosure	Barrier or enclosure which admits the stock but which will not admit hands into danger zone because of feed opening size, remote location or unusual shape. Also used to enclose power transmission apparatus completely. Used to contain bursting machine parts.	Limited to specific operations. May require special tools to remove jammed stock. May interfere with visibility. Requires interlocks for repair or maintenance work.
Adjustable Enclosure	Barrier or enclosure which is adjusted to fit around different sizes or shapes of the die. When adjusted, provides same protection as fixed enclosure.	Often requires frequent adjustment and careful maintenance.

CHART II—Interlocking Guards

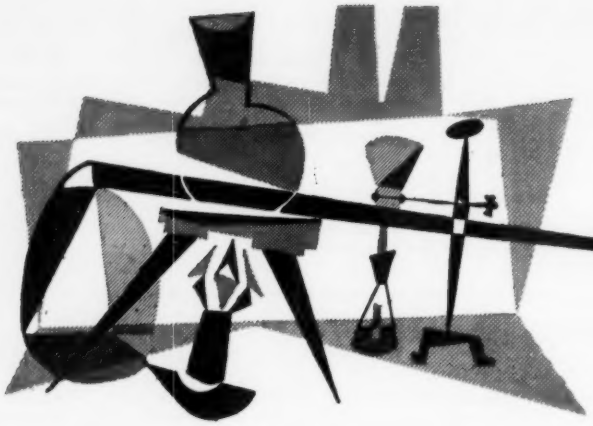
Guarding Methods	Guard Actions	Limitations
Enclosure with electrical or mechanical interlock.	Enclosure or barrier shuts off or disengages power and prevents starting of machine when guard is open; prevents opening of the guard while machine is under power or coasting. (Interlocks should not prevent manual operation or "inching" by remote control.)	Requires careful adjustment and maintenance. Operator may be able to make guard inoperative. Does not protect in event of mechanical repeat.
Barrier with electric contact or mechanical stop activating mechanical or electric brake.	Barrier quickly stops machine or prevents application of injurious pressure when any part of the operator's body contacts it or approaches danger zone.	Requires careful adjustment and maintenance. Possibility of minor injury before guard operates. Operator can make guard inoperative.
Electric Eye	Electric eye beam and brake quickly stops machine or prevents its starting if the hands are in the danger zone.	Expensive to install. Does not protect against mechanical repeat. Generally limited to use on slow speed machines with friction clutches or other means to stop the machine during the operating cycle.

CHART III—Automatic Guards

Guarding Methods	Guard Actions	Limitations
Push-away device with barrier.	A movable barrier, attached to pressure part, pushes or lifts hands out of danger zone.	Hands must be in normal position for guard to be effective. Hands may be caught by guard. Possible interference with feeding stock. Slow action may decrease production in some cases. Does not permit blanking.
Pull-away device	A cable operated attachment on ram, connected to the operator's hands or arms to pull the hands back only if they remain in the danger zone; otherwise it does not interfere with normal operation.	Requires unusually good maintenance, adjustment to each operator, and frequent inspection necessary. Limits movement of operator. May obstruct workspace around operator. Does not permit blanking from hand-fed strip stock from side of press.
Limitation of stroke	Plunger travel limited to ⅜" or less; fingers cannot enter between pressure points.	Small opening limits size of stock.

CHART IV—Remote Control, Placement, Feeding, Ejecting

Guarding Methods	Guard Actions	Limitations
Two-hand trip (can be adapted to multiple operation).	Simultaneous pressure of two hands on switch buttons in series actuates machine.	Operator may try to reach into danger zone after tripping machine.
	Simultaneous pressure of two hands on air control valves, mechanical levers, controls interlocked with foot controls, or the removal of solid blocks or stops permits normal operation of machine.	Does not protect against mechanical repeat unless blocks or stops are used. Some trips can be rendered unsafe by holding with the arm, blocking or tying down one control, thereby permitting one hand operation. Cannot be used for some blanking operations.
Automatic or semiautomatic feed (with enclosure of danger points).	Stock fed by chutes, hoppers, conveyors, movable dies, dial feed rolls, etc. Enclosure will not admit any part of body.	Excessive installation cost for short run. Requires skilled maintenance. Not adaptable to variations in stock.
Special jigs or feeding devices	Hand-operated feeding devices of metal or wood which keep the operator's hands at a safe distance from the danger point.	Machine itself not guarded; safe operation depends upon correct use of device. Requires good employee training and close supervision. Suitable for limited type of work.
Special tools or handles on dies.	Long handled tongs, vacuum lifters, or hand die holders which avoid need for operator's putting his hand in the danger zone.	Operator must keep his hands out of danger zone. Requires unusually good employee training and close supervision.
Special ejecting devices	Air of mechanical ejection.	Limited size of stock. Use in conjunction with other guarding methods.



industrial hygiene

Safety In Uranium Milling

The Atomic Energy Commission has issued follow-up orders to the operators of five uranium processing mills in a further step to assure that concentrations of radioactive material in mill areas and in wastes discharged into streams are brought within permissible limits established in Commission regulations.

Plans for bringing their operations into compliance with regulations have been submitted by the mills as required by letter orders issued by the Commission May 22, 1959. Under the new orders, performance in accordance with these plans is made a condition of the companies' licenses to possess and process uranium ores.

Corrective actions planned include improved control procedures for the discharge of wastes into streams; further use of settling ponds to reduce the concentrations of toxic and radioactive materials in mill effluent; equipment additions and modifications to reduce mill dust including use of mist sprays to wet down uranium, and use of industrial vacuum cleaners, air ducts, and dust collectors. The mills will conduct improved survey programs to determine the effectiveness of measures taken to reduce dust and, where necessary, to lower the concentrations of radioactive materials, including radium, discharged into streams.

Some corrective measures have already been accomplished and others will be carried out in the next few months.

As part of its program to improve the safety aspects of mill operations, the Commission is financing an industrial waste survey of uranium milling operations on the entire Colorado Plateau undertaken by the Public Health Service at the request of the Commission. Principal objectives of this survey are to develop full information concerning airborne radioactivity in working areas and radiation levels of mill effluent, and to develop guides for improved handling of mill wastes.

Uranium Mines

The Atomic Energy Commission does not exercise regulatory authority over uranium mines. The Commission has had a strong and continuing interest, however, in possible hazards to the health of workers engaged in uranium mining, principally from radon gas, and it has participated in and financed a number of pertinent activities during the last decade including a program of environmental studies carried out under direction of the U. S. Public Health Service; an annual series of medical examinations of miners; and related medical studies carried out by the University of Rochester. To help accomplish the medical examinations of the miners, the Commission, through its Grand Junction (Colorado) Operations Office, has provided equipment for mobile teams of doctors who visit uranium mines and conduct on-the-spot examinations.

Recently, an inter-agency group met to consider the extent of the health hazard in the mines, how Federal agencies can most effectively assist the states to reduce the levels of radiation in the mines, and what additional authority at the Federal level may be desirable or necessary. The first meeting of this group was held in May. Representatives were present from the U. S. Public Health Service, the Atomic Energy Commission, the U. S. Bureau of Mines, the Bureau of Indian Affairs, and the U. S. Department of Labor. Committees are being set up to work toward the objectives of the inter-agency group.

Alcoholism In Industry

A book springing from the Du Pont Company's experience in rehabilitating alcoholics among its employees has been written by Dr. C. A. D'Alonzo, assistant director of the Medical Division, as a guide to control of alcoholism by individuals and organizations.

Titled "The Drinking Problem and Its Control," the book has been published by the Gulf Publishing Company of Houston, Texas.

Dr. D'Alonzo's book reflects the company's experience to help individuals and organizations confronted with alcoholism by tracing the disease from beginning to "rock bottom" and spelling out the successful methods of arresting it.

Both the book and the Du Pont program which generated it apply to living and working conditions which are normal. Du Pont's problem of alcoholism among

(Continued on page 43)

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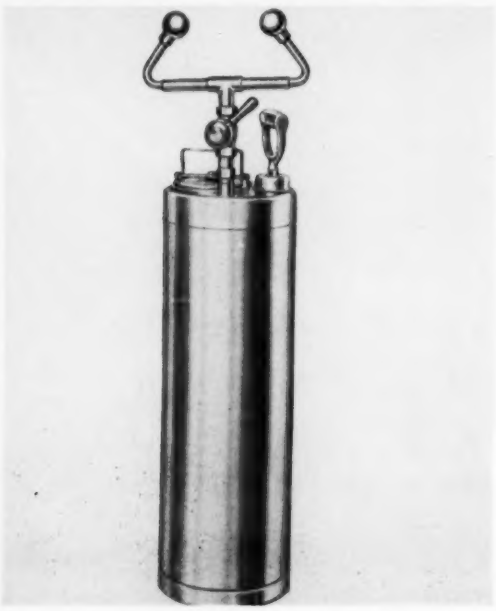
For details, use Key # K-12 on card on page 71)

FIRST AID FOR CHEMICAL

by **JOHN E. TRAYNOR**
General Manager
Haws Drinking Faucet Company
Berkeley, California

Since almost every industry today uses hazardous chemicals somewhere in its facilities, water irrigation installations are a vital first aid measure.

Pedestal mounted eye-wash fountain with enameled iron bowl. Foot treadle frees hands to hold eyelids apart.



Portable type of eye-wash fountain may be used anywhere for immediate relief of chemical eye injuries. 3-gallon stainless steel tank maintains handle-pumped pressure 8 hours.

Industry has moved forward with astonishing speed during our generation. New machines, new processes—and a wealth of new (and dangerous!) materials mean that industrial workers are more than ever exposed to injury. Of great concern to safety engineers everywhere is the tendency toward injuries resulting from chemical contamination—a natural by-product of modern manufacturing methods which rely more and more on volatile and caustic chemicals. Today, virtually every plant has acids, or alkalies, or volatile fuels in storerooms, supply lines, or mixing vats. There is practically no industry free from this type of hazard!

The Solution? Water!

The most effective, immediate first aid treatment for burning, injurious contaminants is water—an answer obviously self-evident, yet for decades almost overlooked by those concerned with the commercial production of safety equipment. In treating contaminated eyes, for example, water has many times been ranked **well down** on the list of recommended flushing solutions. Recently, however, top medical authorities have compared water, saline solution, and boric acid for effectiveness in "contamination" first aid. **Their results:** It actually makes no difference which solution is used as long as the eye is irrigated copiously. **The important thing is an immediate flushing of the eyes to remove and dilute foreign matter!**

Water is the most plentiful, practical, and universally available treatment for chemical contamination; yet, as recently as 10 years ago, large industrial organizations were without adequate water irrigation facilities. There were occasional hose outlets, to be sure, and scattered water buckets "in case of emergency"—but hard-to-find, low-capacity facilities don't mean much to a man spattered with acid, or one whose vision is suddenly blacked out.

The Beginnings

Before World War II, industrial executives began to recognize the need for an advanced system of safety

INJURIES

FIRST AID SERIES
other articles Sept. & Nov.

Twin water streams gently cleanse eyes saving valuable seconds until medical aid arrives. The quick-opening water valve is operated by a foot treadle.

to keep pace with the growing chemical dangers. Makeshift water irrigation equipment began appearing, designed usually by the plant "master mechanic," and limited only by his creative imagination. Drinking fountains were coupled together to provide crude eye-washing facilities. Home-made showers were hastily constructed near danger areas for quick drenching. Soon, qualified safety engineers entered the picture, drawing up more complete, detailed specifications and submitting them to plumbing manufacturers for bids. It was not long before makers of safety equipment and drinking fountains realized that a great latent demand existed for custom-made safety equipment utilizing the principle of generous water irrigation.

The Problems

Although the eye-wash fountain and drench shower of today are smooth-functioning, fool-proof pieces of safety equipment, the prototype models posed many problems. Emergency units, by their very nature, are operated by men under great strain. Activating valves had to be simply designed so that quick, sure operation was possible by shocked or even blinded victims—leaving their hands free to aid in the treatment. (Badly burned eyes must be forced open for proper irrigation, and contaminated clothing must be removed from skin contact as fast as possible.) The valve operating mechanisms of today are a tribute to the imagination and skill of engineers assigned to this problem. Safety equipment is now available with push-buttons, levers, swing-gates, pull-rings, and foot treadles. These devices usually trigger quick-opening valves to provide the extra measure of safety that may spell the difference between temporary irritation and permanent injury.

The location of this emergency equipment in usually corrosive atmospheres dictated the need for the manufacturing of functional parts and exposed surfaces of outstanding durability. Manufacturers today offer eye-wash fountain bowls of stainless steel, enameled iron, and other highly resistant materials. Functioning parts are available in highly corrosion-resistant red brass. Epoxy resin coating, too, is offered on units where extra protection is desired.

Emergency Eye-Wash Fountains

Industrial safety experts and doctors agree that immediate and plentiful irrigation is the best first aid step in treating eye contamination; however, high water pressure in many plant lines presented a problem. Engineers experimented with various valve installations attempting to control this pressure and save contaminated eyes from further damage by hard-hit-

Wall-mounted, stainless steel eye-and-face wash fountain features a perforated copper spray-ring in the bowl to flood the face while the dual fountain heads cleanse eyes. Push-type valve remains open until it is manually closed.

ting water jets. Today, fountains are available equipped with special valves which deliver a gentle, cleansing stream to the eyes regardless of line pressure.

Designed to flood the eyes with dual, **pressure-controlled** water streams, a variety of eye-wash fountain models are available to serve any industrial need. An advantage of this type of fountain over squeeze bottles and rubber bulbs is that unlimited quantities of water are constantly on tap for thorough, prolonged eye treatment. Doctors recommend at least 5 to 10 minutes of continuous eye flushing immediately after an accident occurs, and only large amounts of running water can do the job.

Prolonged treatment of alkali contamination is especially important since chemicals such as ammonia, lime, lye, sodium, and hydroxide—unlike acids—continue to eat the eye even after they appear to have been properly removed. Fresh cement, plaster, and some of the ammoniated detergents often cause little initial irritation, but may result in bad scarring and eventual blindness. Thorough eye washing is a necessity with this type of injury. (**See "Safety Maintenance,"** September, 1958, for more information on emergency treatment for chemical eye injuries.)

Eye-wash fountains equipped with special face spraying units are offered by manufacturers to provide extra safety protection. Both eye and face units are activated simultaneously to cleanse the eyes and, at the same time, flood the victim's face to carry away injurious materials.

Portable fountains, too, are available with large-capacity tanks for emergency use in the field. Because of the need for immediate action where eye injury is concerned, many companies carry these portable units in specially constructed truck racks for on-the-job protection.

In addition to its eye-saving qualities, the eye-wash fountain is being utilized by many companies as a therapeutic aid to relieve the discomfort of eye-smarting smog which seems more and more a part of modern living. Gentle water streams soothe burning eyes and also "wash away" fatigue to send workers back to their jobs refreshed and alert.

Emergency Drench Showers

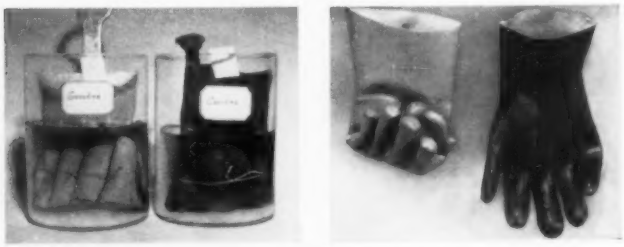
Emergency drench showers exist in many shapes and sizes—all of which release a sudden torrent of water to wash away injurious materials from the body. Many of these shower models are offered with combination eye-wash facilities to provide a complete safety station for immediate first aid.

Drench showers on the market today may be of the multiple nozzle or single head type. Where a directed spray is desired, the multiple nozzle shower may be used. Small nozzles installed overhead (and on sides

(Continued on page 42)

FLEXIGLUVS—Hood's amazing new Koroseal work gloves—are specially made to resist the damaging effects of solvents and light oils.

Ordinary plastic gloves become stiff and unusable when they contact many solvents and oils. But FLEXIGLUVS stay soft and flexible after hours of submersion in the strongest solutions. (see photos)



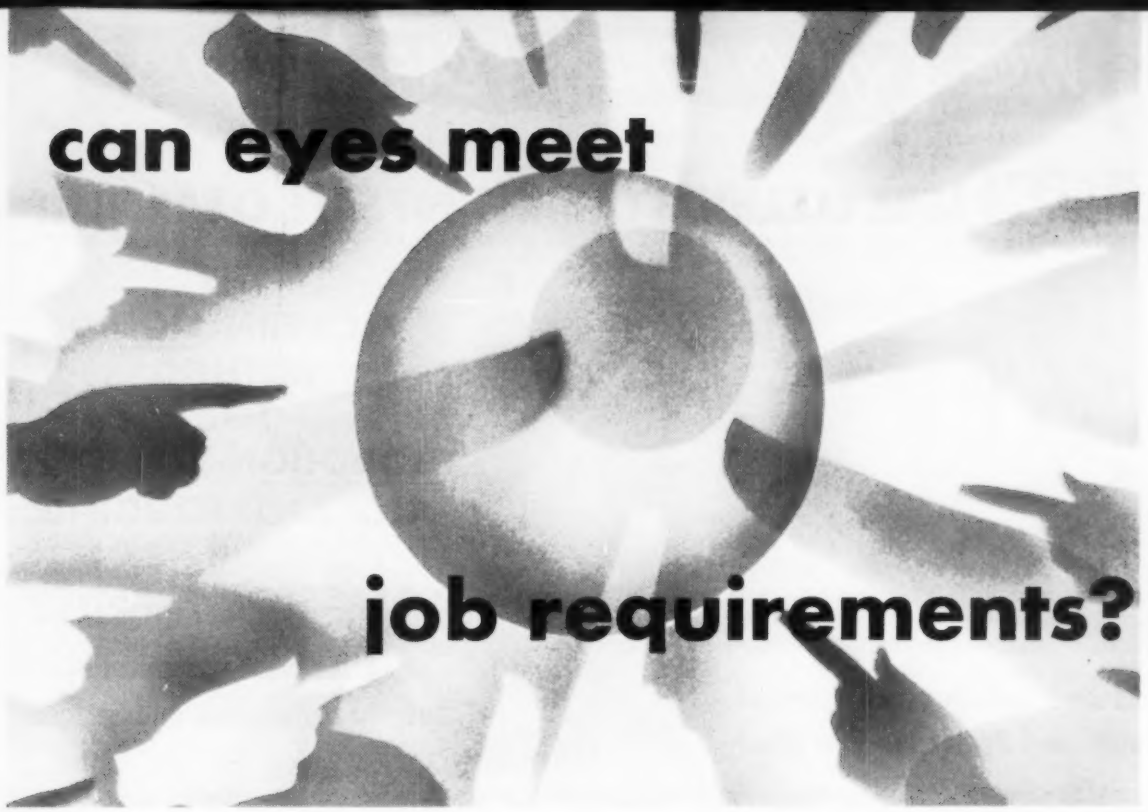
SUBMERSION TEST PROVES FLEXIGLUVS' SUPERIOR RESISTANCE

Ordinary plastic glove (left) and Koroseal FLEXIGLUV (right) submerged in gasoline. After only eight hours, the ordinary plastic glove is so stiff it can't be used. After forty-seven hours, the Koroseal FLEXIGLUV is still soft and flexible.

If workers in your plant handle alkalis, salts, solvents, oils, greases, detergents, dyestuffs or other strong solutions, write today for complete information on new Koroseal FLEXIGLUVS. Hood Industrial Gloves, Watertown 72, Massachusetts.

Hood ***industrial gloves***

(For details, use Key # K-13 on card on page 71)



Big business, in spite of its fast-paced growth and expansion in every direction, is failing its employees by neglecting to recognize their visual requirements and to help cope with their individual eye problems, declared Dr. George W. Davis, Fellow Distinguished Service Foundation of Optometry, and Research Visual Consultant for the Sales Analysis Institute, in a talk at the national meeting of executive management and sales engineers in Chicago.

Decrying some of the antiquated industrial visual testing devices, which in many cases pre-date World War II by 10 years, or in some cases even antedate the visual standards of World War I, Dr. Davis pointed out that industry is losing some of its most valued and experienced workers because of the visual problems. In the present industrial picture, he explained, eye glasses are not the simple answer to eye difficulties that they were once thought to be.

The stepped-up production of industry, its closer levels of tolerance, its expanding competitive market requirements, and its over-all demand for increased accuracy, have produced a stress and strain which makes for a large and varied crop of visual problems. A greater number of employees than ever before are requesting transfers from inspection jobs and the work of overseeing complicated machinery—mainly because of eye difficulties. Good replacements are hard to come by.

Job Induced Eye Problems

Today, declared Dr. Davis, almost all employee visual problems are the result of work conditions. Certain jobs develop certain types of eye problems. Extreme concentration on a tedious nearpoint task for a prolonged period of time may result in a disabling "dynamic" visual condition. The word "dynamic" in this sense means that a relatively small visual discomfort gradually becomes more and more severe throughout the working day, causing fatigue factors that affect the rest of the system, decreasing physical ability, and debilitating mental alertness.

A pair of "static" glasses—prescribed only at the point in this situation when the employee is in the eye doctor's office—cannot keep up with or correct a "dynamic" problem. The employee who tries to adjust finds his originally simple problem of eye strain or fatigue aggravated into a permanent condition of visual deformity known to eye doctors as a "grief case"—a patient not able to see clearly either with or without glasses.

Better Eye Examinations

This nagging problem goes beyond the jurisdiction of the routine eye examination by the company's industrial eye doctor. To solve it Dr. Davis points to the gradual acceptance by industry of an Industrial Visual Consultant who serves as an adviser to management as well as to the eye doctor on the job. The Consultant's work, according to Dr. Davis, is almost the exclusive domain of the optometrist. His knowledge of functional visual processes, both for refraction and visual training is basic for such an assignment. Conferences between him and supervisory management would assure industry of maximum successful coverage of problems which at present cause worrisome bottlenecks.

From data collected in his intensive study of the industrial problem, Dr. Davis cited a few of the facts

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(For details, use Key # K-14 on card on page 71)

he has discovered. Many jobs that **look** visually difficult, he says, are not necessarily so, as for example, a transcribing job. It might be efficiently handled by a blind typist. Certain jobs of molding and fitting might be easily performed by a blindfolded person. On the other hand, he explains, many jobs that look easy may turn out to be almost unreasonable when measured by visually impedimental standards.

Some work is intensely fatiguing over a relatively short period of time, as for example, the work of transcribing logarithm tables. After 15–20 minutes the transcriber may be utterly fatigued visually, and an immediate visit to the eye doctor might result in a prescription for glasses which in the long run would prove detrimental.

An increased demand above normal and a strong desire not to make errors can cause severe visual fatigue. Certain types of complex office machines, though thoughtfully manufactured to keep visual fatigue at a minimum, have a tendency to build a visual impediment in employees who work with them over a long period.

Standard examinations of some cases of visual impairment, Dr. Davis says, easily lead the company doctor to the diagnosis of "myopia" in which symptoms are much the same as in cases of visual fatigue, and glasses prescribed when the patient is in this state of visual fatigue can bring on actual myopic symptoms. In his own correction of such mis-diagnoses, and with proper treatment, Dr. Davis states that he has restored thousands of cases to normal vision.

The body too plays a great part in causing visual fatigue. Physical tension causing visual fatigue in stenographers is sometimes eased by simply moving the work from the right to the left side of the desk. Other seemingly minor alterations in habit patterns have proved highly beneficial. The effects of recreational activity, such as bowling, swimming, baseball, golf, etc., have already been recognized by industry.

Strongly believing that industry can do much to help itself and to help employees help themselves in meeting these visual problems, Dr. Davis recommends individualized help for each industrial organization. The real job, he says, is to get management and employees alike to understand and learn to control certain misunderstandings and to eliminate many false notions about visual fatigue. Once they understand the way in which visual fatigue and visual impediments work, and how they can be overcome, resulting benefits to industry will be highly gratifying. As the work of rehabilitation becomes more widespread, the possibility of creating working conditions free of visual problems becomes almost a reality for both employers and employees.

Water Pollution Program

Taste and odor in public water supplies will be investigated in a twelve-month research program at the Franklin Institute, Philadelphia, under the sponsorship of the Manufacturing Chemists' Association.

The program is part of a project by MCA's Water Pollution Abatement Committee to accumulate information meaningful and useful to the public, the chemical industry and governmental regulatory bodies in the control of water pollution. It will consist of an intensive study and critical review of published and unpublished material on the subject.

In the Franklin Institute, Robert A. Baker, senior staff engineer, will direct the program. He has been active in the field of air pollution and water treatment, and is a member of the Pennsylvania Sewage and Industrial Wastes Association, The Scientific Research Society of America, the joint committee on Uniformity of Methods for Water Examination and other technical groups.

Information arising out of other studies will be made available to those engaged in the study. Results, it is thought, may reveal gaps in the existing technology and indicate where further research is necessary.

In discussing the program, J. T. Garrett, chairman of the subcommittee on the characteristics of chemical waste, said that industry and population growth has led to increased regulatory pressure to ensure that public water used in and discharged from commercial or municipal operations shall not be so polluted as to impair its value to others.

He emphasized that the chemical industry, aware of its public responsibility in matters of pollution control, wishes to cooperate with the regulatory bodies. "We are initiating this project at Franklin Institute," he said, "as a contribution towards the ultimate development of an acceptable yardstick for the measurement of taste and odor pollution of public water."

An additional research program on water pollution abatement under sponsorship of the Manufacturing Chemists' Association has been in operation for the past five years at the Academy of Natural Sciences of Philadelphia. Studies in this program show how a river recovers from the effects of pollution with the progressive return of bacteria, algae, fish, invertebrates, and other life forms natural to a healthy stream.

(For details, use Key # K-15 on card on page 71)

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(For details, use Key # K-16 on card on page 71)

Air Pollution Aided by Geiger Principle

The Geiger counter principle has been adapted to air pollution study and to practical measurement of traces of many specific gases and vapors in air and in industrial process streams, it was reported to the American Institute of Electrical Engineers.

Best known for detecting uranium ore deposits and other radioactive materials, the Geiger counter is operated by the ion current which radioactivity produces between two high voltage electrodes. The minute current of electricity provides a signal that can be amplified to be made audible or visible.

Now ion currents have been put to work both to detect and measure traces of many gases and vapors that may be dangerous to life or property, or may guide the control of chemical processes, etc. For these purposes the instrument detector contains its own radioactive (only slightly greater than that of a luminous dial on a watch) ionizing material.

This use of the ionization principle depends on the chemical formation of solid particles from the gas or vapor. When a gas can be reacted with a suitable chemical reagent to produce a smoke in the ionization chamber, its effect on the continuous ionization current provides a very sensitive and specific measure of the amount of the gas present. Ranges as low as 0–50 or 0–100 parts per billion of gases can be set up.

Techniques for measuring traces of a large number of gases and vapors have been developed, according to L. E. Maley of Mine Safety Appliances Co.

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(For details, use Key # K-18 on card on page 71)

Testing the Underground Air

Entering a manhole to service underground lines demands maximum safety, particularly when these lines are located in the midst of a vast oil-producing area. Such was the problem facing engineers of the General Telephone Company of California in the Long Beach area.

They solved the problem by instituting comprehensive procedures, utilizing a combination of devices used for checking the presence of combustible and toxic gases. An instrument kit designed by J. W. Florer, engineer in the methods group at General of California, in cooperation with instrument manufacturer's engineers, was the result. The kit has since been submitted to General Telephone's system headquarters in New York and is under consideration for adoption as standard equipment in all its operating companies.

A. R. Valantine, director of safety at the California company, said that the testing program was initiated in the Long Beach area, because 14 utility lines carrying oil, gas and other combustibles were involved in the underground system. "Acute need of a more exhaustive method of checking was brought home to us when our crews had to enter the underground system last October to pull through new telephone conduit," he continued. "We found up to 100 percent explosive concentration in some manholes. A match might have blown up the entire area, since it is surrounded by oil wells."

As a result of the findings, the area was closed off until explosive conditions could be corrected.

Under the new testing practice, no manhole cover is even raised until a sampling has been made with

1

2

3

Fig. 1—First step in General Telephone Company's new method of checking manholes for possible concentrations of explosive and toxic gases is demonstrated by this lineman. He has lowered the sampling hose six inches through the small aperture in the manhole and is using the aspirator on the explosion meter to draw a sample of the manhole atmosphere through the sensitive instrument. If a high explosive concentration is indicated, the cover will not be removed. If lesser concentrations are shown, or if no explosive gas is indicated, a second test still is made with the manhole cover partially open and the sampling hose lowered 12 inches below the street surface. The gas kit also contains equipment which detects the presence of carbon monoxide and hydrogen sulphide.

Fig. 2—To check for the possible presence of carbon monoxide, a sensitive detector vial is lowered into the manhole and samples are aspirated through the sensitive materials. If carbon monoxide is present, contents of the tube turn green. The intensity of the green color indicates the amount of carbon monoxide present. If lineman detects the odor of rotten eggs he is required to make an additional test for hydrogen sulphide gas. If white granules in the tube turn a dark gray, hydrogen sulphide is present.

Fig. 3—Periodic tests are continued at each manhole while telephone crews are working underground to make certain there's no explosive or toxic gas.

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an explosion meter, via the small aperture in the manhole cover. (see Figure 1.) The meter measures the concentration of gases or vapors below or above the explosive range. If no combustible gas is present, the manhole lid is partially removed and a second test is made with toxic gas indicators. (See Figures 2 and 3.)

In the old method only one test was made. It required approximately ten minutes to complete and the results were often inconclusive. By integrating the techniques and instruments used in the new method into one compact carrying case, and working out a few simple design changes, telephone crews now have a three-in-one instrument kit that enables them to check a given manhole thoroughly in less than three minutes. General of California now has 125 of these testing kits in use throughout its system, and additional kits are on order.

"Since instituting this more comprehensive testing procedure, several of our crews have found both explosive and toxic concentrations of gases in connection with underground conduit work projects," Mr. Valantine stated. "Once the word got around, there was no need to urge other crews to make thorough tests before proceeding with underground work assignments," he added.

Pictures by courtesy of Mine Safety Appliances Co.

Chemical Injuries

(from page 36)

of shower in some cases) can be adjusted to cover special body areas with a fine mist or a heavy stream. Single head showers, on the other hand, achieve a "water-bucket" effect and send sheets of cascading water over the body. There are also shower units available utilizing a combination of a single head

Combination drench shower and eye-wash provides a complete safety station. The pull-ring for the shower activates a slow self-closing valve, releasing a torrent of water.

(mounted above) and multiple nozzles (mounted on sides). Whatever the style, drench showers are designed to deliver instantly a maximum of body-enveloping water.

Drench showers are also being used at jet, missile, and research installations for routine precaution as well as emergency first aid. Instant, fast-flowing shower action enables safety-suited workers to wash away clinging contamination in seconds, eliminating possible danger to themselves and others.

Then And Now

Water has been man's most effective treatment for body contamination since the earliest times. The magical health-giving properties attributed to lakes and rivers in the folk lore of virtually all peoples shows that primitive "Safety-Engineers" were on the right track. Fortunately for modern industry, proximity to large bodies of water is no longer a safety necessity. Boiling rivers and gentle streams are now "on tap."

Today, water irrigation equipment is available commercially from a number of manufacturers in standard and made-to-order specifications. From fiberglass to stainless steel, from foot valves to push-buttons, from portable eye-wash fountains to cloudburst-proportioned showers, industry can now make use of this effective, inexpensive method of emergency first aid.

Pictures by courtesy of Haws Drinking Faucet Co.

Alcoholism in Industry
(from page 32)

employees is typical of the nation as a whole rather than exceptional; its 85,000 employees form a cross section of the public and the proportion who are alcoholics is average.

Dr. D'Alonzo points out that unless an alcoholic is rehabilitated by some means, he invariably loses his health or sanity, if not his life.

The author speaks of two parallel activities: general work through management and employees to spread the idea and break down stigmas attached to alcoholism, and direct work with alcoholics through Alcoholics Anonymous to rehabilitate them. This program that can be handled successfully by any willing group or individual. He points out that the effort to recognize the disease is a key factor in any attempt to do anything about it, whether by an individual or an organization. The earlier the problem is recognized, the easier it can be treated. This and treatment of alcoholism as a disease are vital. The alcoholic must want help before the help will do any good; he cannot be forced into it. All too often this does not occur until he hits rock bottom. How he gets there, the stages he goes through, what to look for, and how he can be helped when ready, are all detailed in the book.

It describes the alcoholic and the phases of the disease, relating how alcoholism affects the individual, medically and otherwise, and those around him are affected. It also covers medical and non-medical treatments and shows how they can be made to succeed, and it details the role of industry and family in meeting the problem.

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(For details, use Key # K-21 on card on page 71)

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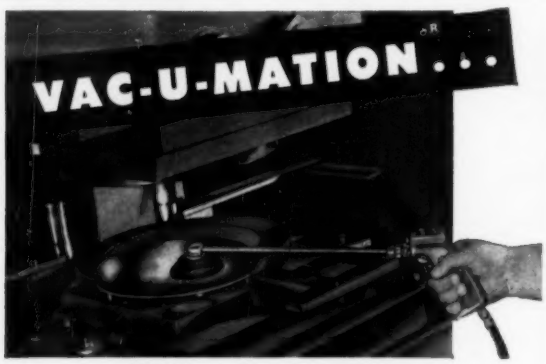
MID-AIR ELECTROCUTION

Four steel workers were recently electrocuted when all were standing on a girder being lowered by a crane when a cable fouled an 11,000-volt overhead power line. Those in charge had failed to mark the lines well enough to warn those who might be exposed. A second glance at the fatal accident makes one wonder why four men were riding the girder—even if there were no dangerous lines.

"ON HIS TOES"

A swamper smashed several of his toes when he was uncoupling a trailer from a small tractor. After disconnecting the trailer he lost control of the metal tongue and it dropped on his foot. This is a common injury in warehousing, stevedoring, cotton gins, packing houses and other occupations where trailers pulled by tractors are used. Snubbing the tongues is an immediate solution. An added precaution would be safety shoes with a toe cap—a measure to protect workers in occupations where there are hazards to the feet, and a wise investment.



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BACK INJURIES—Late Filing of Claim —Medical Treatment

An employee was properly compensated for back injuries received in the regular course of employment because the employer was not prejudiced by the late filing of the claim, could neither show that the treatment given these injuries was improper nor that they would have prescribed something different. The claimant was injured while lifting a heavy block of wood. This injury followed a history of back trouble that had been diagnosed as sciatica. Subsequently, the claimant was again treated for sciatica before going to a specialist who saw that he was suffering from a herniated intervertebral lumbar disc. This delay in diagnosis caused the notice of accident to be given later than the 30 days specified by statute. However, no evidence was presented to show that the original treatment prolonged the disability, so that the board's action was justified. Award affirmed.

Zullo v. American Locomotive Co.; New York Supreme Court, Appellate Division, Third Judicial Department. No. 1084. June 9, 1959.

HEART CONDITION—Causal Connection—Partial Disability Reopened Claims

An employee who suffered a second heart attack was improperly compensated for a continuing permanent partial disability since there was no medical proof to show that the last disability was related to the first heart attack. The claimant had suffered his first heart attack three years prior to the second one. He had been properly compensated for the first heart attack and the case was closed. When he suffered the second attack, he applied to have the case reopened. The board found that he had a continuing permanent partial disability causally related to the first accident. However, since there was no medical proof that the second attack was connected to the first, the record did not support the board's finding. Decision reversed and remitted.

Berger v. Bodner Bakery; New York Supreme Court, Appellate Division, Third Judicial Department. No. 689. June 9, 1959.

DEATH BENEFITS—Coronary Insufficiency—Causal Connection

Two days before his death, decedant was acutely ill with angina attacks lasting at least five minutes and accompanied by severe headaches, shortness of breath and perspiration. He went to a Veterans Administration Hospital and was told by a physician who examined him that he would have to have complete bed rest, or he would not live long. Nevertheless, the decedant returned to work after an intervening day, and in the course of his employment as an electrician (which required standing on a roof of a house to install exterior outlets, painting of tubing, using a saw to cut an opening of some kind) he collapsed and died while resting during the noon hour. His death was due to coronary insufficiency. HELD: The medical testimony in the case did not warrant a finding of accident. Decision awarding death benefits reversed, and claim dismissed.

O'Brien v. Ronneberg; N. Y. Supreme Court, Appellate Div., Third Dist. #1265, June 9, 1959.

CAUSAL CONNECTION—Back Injury

Plaintiff was accidentally injured July 16, 1953 while working for his employer. The resulting condition was diagnosed as Lumbo sacral sprain or an intervertebral disc herniation. He did not return to work until September 1954, when he went to work for another employer. While so employed on Jan. 7, 1955 an incident occured to his back causing him to again stop work. An impartial specialist to whom the matter had been referred by the Board, decided that there had been no new accident in Jan. 7, 1955, but that all the disability was due to the 1953 accident. HELD: There is substantial evidence to justify the conclusion that the incident of Jan. 1955 was an exacerbation of the 1953 injury, and the award for the entire disability against the first employer is affirmed.

Bonsteel v. Skyline Products Co.; N. Y. Supreme Court, Appellate Division, 3rd Judicial Dept. No. 1120, June 9, 1959.

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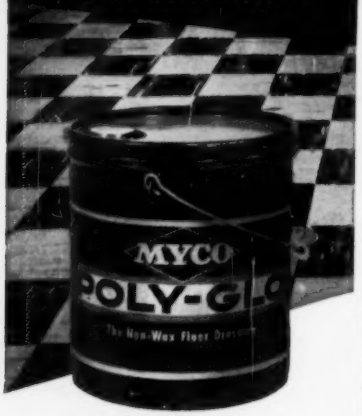

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(Use Key # K-24 on Inquiry Card on page 71)

Achievements and Awards

Vierling Steel Works has received an award for one of the outstanding safety records in the nation—three years of operation without a disabling injury. The award consists of a handsome plaque presented by the Founders Mutual Casualty Company. Realizing the dangers of welding and handling large and heavy structural steel forms, Duane T. Molthop, president of Vierling Steel Works, instituted a safety program for his employees fifteen years ago.

• • •

"Get everyone in the act—safety is no accident!" This spearheaded the highly successful safety program at Continental Machines, Inc., and has helped that plant pass the million hour mark twice in four years. This was achieved again on July 8th of this year with 383 consecutive days without a disabling accident.

The safety program responsible for these records was started in 1954 by a safety committee working with the full backing of the top management. The committee formulated a four point program to combat accidents at all levels. First, all supervisory personnel were brought into the program and acquainted with their specific roles in safeguarding the workmen. Second, the safety education program was reappraised to be understandable and significant to all employees. Third, all accidents were rigorously investigated and analyzed so that causes could be isolated in every case and then remedied. Fourth, even though little improvement was needed in a plant known for its good housekeeping, this important phase of safety was reemphasized.

These four approaches successfully worked together to make safety a primary interest to all—and the results are seen in the million hour marks that are consistenly being broken. **"Maintaining** continued interest in the safety program is as important as setting up the program in the first place" stated Harley Wehrwein, Director of Safety. "The first responsibility," he continued, "of a safety officer is to keep the program vital and meaningful to all employees."

One of the steps used at Continental Machines, Inc., to achieve a high safety record is recognition of satisfactory achievement. Periodic safety contests are used; and each quarter the department making the greatest contribution is awarded the plant safety award plaque. When the first million hour mark was exceeded each employee received a letter of appreciation with a silver dollar attached from Mr. J. W. Wilkie, President of Continental Machines, Inc. For the second million hour mark, they are being given Thank-U-Grams and inscribed key holders.

• • •

Interstate Life Insurance Company of Texas presented its first annual safety award to Art Thomas, inventor of an insulating shield devised to prevent accidental electrocution for operators of cranes, draglines and other hoisting equipment.

The award which was presented to Thomas for "his contribution toward safe construction" also honored the Little Rock inventor's 27-year career in safety work on construction projects.

The Grand Rapids mine and plant of Bestwall Gypsum Company, with headquarters in Ardmore, Pa., were presented a coveted mining safety award. The U. S. Bureau of Mines "Sentinels of Safety" trophy was presented to Arthur H. TenElshof, Plant Manager, by Thomas E. Miller, of "Explosives Engineer" Magazine, sponsors of the award, at the ceremonies held on the plant site. Frank Bigelow, retiring Plant Safety Director, was also presented the official "Sentinels of Safety" flag.

The Grand Rapids plant and mine of Bestwall Gypsum Company had been wholly accident-free throughout 1958, for a total of more than 200,000 accident-free man-hours throughout the year. The plant's perfect safety record extends back to September 21, 1957 for a total of more than three-fourths million accident-free man-hours as of July 1, 1959.

Mr. TenElshof also received the U. S. Bureau of Mines Joseph A. Holmes Certificate of Honor for the Grand Rapids underground mine's record of almost one-and-a-quarter million accident-free man-hours worked since November 26, 1954. This award was presented by Roy D. Scott, U. S. Bureau of Mines Mining Engineer of the Health and Safety Division, with headquarters in Washington, D. C.

• • •

Matt F. Fink, Safety Director of Bestwall Gypsum Company and Certain-teed Products Corporation, was cited by the companies recently for establishing a safety program which resulted in a more than 90 percent drop in injury frequency during less than five years. The injury frequency rate at Bestwall Gypsum Co. has dropped from 7.46 per million man hours, in 1955, to 0.42 in the year ending December 31, 1958. At Certain-teed Products Corp., similar statistics show a drop from 11.80 in 1955 to 4.26 in the past year. The National Safety Council's "Award of Honor" was given the Sigurd, Utah plant in 1958. This was the first time that award was given to the gypsum industry. Awards and certificates were extended to other plants by the National Safety Council, the Asphalt Roofing Industry, and the Gypsum Association, and other organizations.

All Bestwall and Certain-teed plants maintain a Safety Committee composed of the Plant Manager, Plant Safety Director, Supervisors and one hourly employee from each department. The Safety Committee meets once each month. Material used for these meetings is provided by corporation's Safety Director. Handling of machinery and working habits are discussed and recommendations for corrections are made.

Each supervisor conducts weekly safety talks and gathers any information from his employees that will aid in reducing accident hazards. To further aid the safety program, a "housekeeping" inspection is conducted once each month by the plant Safety Director. A good

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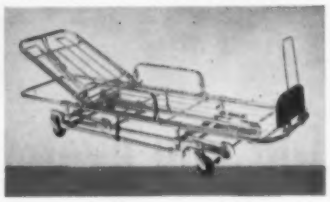

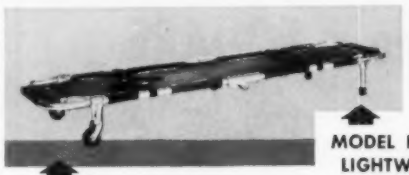

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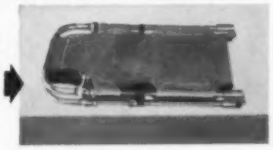

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housekeeping plaque is awarded to the department showing the best safety measures. First Aid courses also are conducted at intervals either by a U. S. Bureau of Mines representative or a representative of the State Labor Board. A monthly Safety News Bulletin is compiled by the plant Safety Director and mailed to each employee in an effort to reach employees' homes with a safety education message.

The National Safety Council has presented its Award of Merit to the Vulcan plant, Buena Vista, Va. of Reeves Brothers, Inc., New York. In more than three years, since May 3, 1956, the plant has worked 2,115,000 man-hours without disabling injury.

The Vulcan Plant of Reeves Brothers, Inc., manufactures synthetic rubber and plastic coated fabrics, as well as rubber blankets for offset and news printing. The volatile solvents used, combined with static electricity, represent a serious fire and explosion hazard. However, rigid safety precautions have kept these hazards under control. Controls include grounding devices wherever static electricity is generated, as well as utmost cleanliness throughout the plant. Employees must wear shoes with conductive soles.

• • •

Third annual safety awards for the metal lath manufacturing industry have been announced by Donald R. Wadle, managing director of the Metal Lath Manufacturers Association. Employees of the Hermosa Plant of the United States Gypsum Company, Chicago, Illinois won the MLMA traveling safety plaque for the lowest injury-frequency rate for 1958 with a perfect record. Permanent plaques for perfect injury-frequency records during 1958 also went to employees of USG, as well as the Ceco Steel Products Corporation, Chicago, and the Bostwick Steel Lath Company, Niles, Ohio. A separate safety award for the greatest reduction of injury-frequency rate in 1958 as compared to the preceding year also went to Ceco employees.

• • •

In an industry at times thought accident-prone, one chemical cellulose and wood pulp producer recently set another safety record which might well merit orchids even in traditionally "safe" industries. For none of Rayonier Incorporated's employees at its four U.S.A. manufacturing divisions suffered a disabling injury during the past 100 days.

Announcing the new record, Russell F. Erickson, president, disclosed that this is a new high point in the safe operation of the company's mills at Fernandina Beach, Florida; Jesup, Georgia; and at Hoquiam and Port Angeles, Washington. 1,500,000 employee hours free of disabling accidents are involved in this safety record, he reported.

For the six-month period ending last June 30, the combined acci-

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dent frequency rate for the manufacturing divisions, embracing some 2800 workers, stood at a record low of 2.01. For the same period, the over-all company accident frequency rate, which includes Rayonier research at its two U.S.A. installations and extensive logging and forestry operations in the Southeast and Pacific Northwest, stood at 7.74. This is also a new record which involves 3800 employees in the U.S.A.

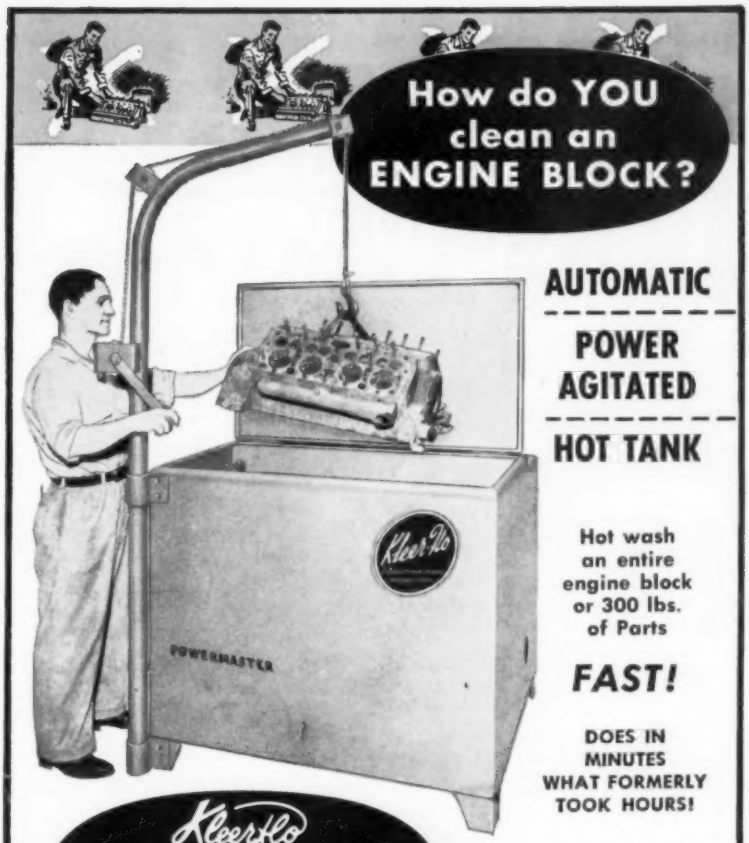
• • •

The city of San Francisco and San Diego County, California, have been named 1959 Grand Award winners for conducting the most outstanding city and county Vehicle Safety-Check programs in the nation. A national Board of Judges convening in Washington, D. C. on July 21 made the selections climaxing the 1959 National Vehicle Safety-Check for Communities program sponsored annually by the Inter-Industry Highway Safety Committee and "Look" Magazine, in cooperation with the Association of States and Provincial Safety Coordinators.

The Honor Driver Council of Ottawa County, Ohio, has won this year's "Circle of Safety" Grand Award for conducting the most outstanding teen-age sponsored Safety-Check. Greeley, Colorado's, Teen-age Safety Council received the "Circle of Safety" Grand Award for outstanding assistance to a community Vehicle Safety-Check. This was the second win in as many years for the Greeley teen-agers.

National Awards of Excellence for top city Safety-Check programs by population groups went to: Portland, Oregon; South Bend, Indiana; Great Falls, Montana, and Greenville, South Carolina, (tie); Painesville, Ohio; and Thermopolis, Wyoming. Painesville and Greenville won the same awards last year.

Counties winning National Awards of Excellence by population groups were: King County, Washington; Trumbull County, Ohio; Huntington County, Ind.; Wright County, Iowa, for the third straight year; and Knox County, Missouri. Huntington County has won a national award for the last three years.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(For details, use Key # K-27 on card on page 71)

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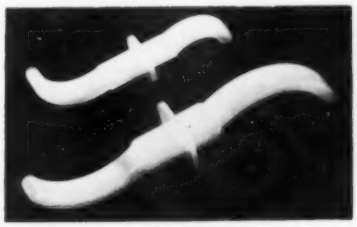

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For use in Mouth-to-Mouth Artificial Respiration

Each Resuscitating Tube, patterned after those described in the literature, has a larger and smaller end. Thus, the two *mira* Resuscitating Tubes, Child's Size and Adult Size, together cover the range from small children to adult men, in four steps.

New Low Prices, in attractive durable box:

Set of Adult and Child's Size . . . $2.50

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Manufacturers of the MIRA OXA-100 Oxygen Analyzer and the continuous-reading MIRA T-100 Surgical Thermometer.

(For details, use Key # K-28 on card on page 71)

New Guide For Correct Plastic Uses

Plastics frequently are a key material used in the production and fabrication of a company's products, and in maintenance and safety applications—but few shopmen know "what is best used where."

To meet that need, Commercial Plastics & Supply Corp. has just issued a handy "Guide to Use of Plastics in Production, Maintenance and Safety Applications" that can easily be slipped into an engineer's notebook, or pasted up on the shop bulletin board for all to see. With the "Guide" are some helpful hints on the proper storage and care of plastic sheets, rods and tubes in the customer's own plant.

Commercial's "Guide" has been printed in easy-to-read type, and is in column form to aid engineers and shop personnel in quick selection of the right type plastic for specific applications. All thermosetting plastic materials are treated in one place, followed by thermoplastic materials and their attributes. The section on storage and care of plastics is treated in pictures, in "how to do it . . ." fashion.

Copies of the new Guide can be secured by writing to Arthur Herman, at Commercial Plastics & Supply Corp., 630 Broadway, New York 12, New York, or to any of the firm's individual branches in Miami, Fla., Greensboro, N. C., Pittsburgh, Pa., and Philadelphia, Pa., or to its Newark branch in New Jersey.

Industrial Film Catalog

The 1959 edition of the Industrial Management Society film rental catalog lists 77 films describing American work simplification and industrial engineering training projects produced in leading American companies.

The folder explains the terms by which the 16mm films are available for rental. These films, many in color and sound, all have won awards in the annual Methods Improvement Contest sponsored by the Society.

The films are approximately 10 to 15 minutes long in running time and picture "before" and "after" phases of training methods and work simplification projects in both plant and office operations.

Copies of the brochure are available by writing the Industrial Management Society, 330 South Wells Street, Chicago 6, Illinois. There is no charge for the booklet.

Machine Guarding

(from page 30)

stock at the point-of-operation, yet keep hands safe. Mechanical or air-operated ejecting mechanisms may be used to remove parts, thus eliminating the need for the hands to be placed in the danger zone.

The theory behind these methods is that if for good reasons it is impossible to completely enclose or isolate the hazard, the next best device or combination of devices should be used to keep the exposure to a minimum. (See Chart IV.)

This article will be continued in the November issue of "Safety Maintenance."

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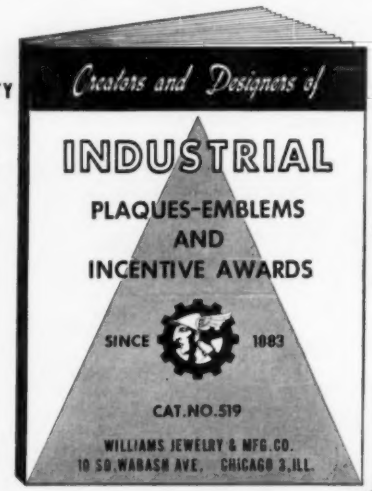

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(For details, use Key # K-29 on card on page 71)

BRI Noise Problem Report

Increasing problems with noise in all types of buildings due to lighter weight construction, more technical equipment, and other causes, resulted in a new book just published by the Building Research Institute, "Noise Control in Buildings." In an attempt to define and solve these problems, a BRI conference in January 1959 of architects, engineers, building contractors, acoustic experts and building scientists produced this 150-page book of experiences, opinions, and suggestions to eliminate or control objectionable noises of all kinds.

An objective, unbiased analysis of the problem, this book was published by the Building Research Institute, a unit of the National Academy of Sciences-National Research Council, under the sponsorship of ten building industry firms. Copies are available from the Building Research Institute, National Academy of Sciences-National Research Council, 2101 Constitution Ave., Washington 25, D. C. Publication 706, 150 pages, 8½" x 11", illustrated, paper bound, $5.00 each.

Synthetic Ropes

(from page 22)

and "Dacron" are giving outstanding performance in industrial applications where ropes of natural fibers are not satisfactory due to premature failure. Nylon is recommended where alkaline conditions exist and "Dacron" for uses in the presence of mild acids.

7. Sunlight Resistance

Usually, ropes fail or lose strength because of abrasion, wear, or overloading. However, for smaller sized ropes, strong sunlight can be a cause of loss of strength in ropes of any fiber, natural or synthetic.

Nylon and "Dacron" have good resistance to degradation from sunlight and for ropes over about ½ inch diameter no special precautions need be taken to shield them from the rays of the sun. Prolonged exposure should be avoided in ropes below ½ inch diameter, in order to achieve the extended wear life of which these ropes are capable.

8. Flex Life

Internal fiber abrasion caused by repeated flexing in applications, such as over pulleys and sheaves, is a significant factor in shortening the life of ropes. Data obtained from actual installations for extended periods indicate that ropes of nylon and "Dacron" will continue to operate many times longer than natural fiber ropes. Laboratory tests on same size (diameter) ropes have shown nylon to last up to 80 times as long as manila in a reverse flex test under load.

9. Stability to Change in Length

Ropes of either nylon or "Dacron" as now usually manufactured exhibit little change in length when exposed to constant soaking in water or to the normal range of temperatures encountered by ropes. This assures that ropes of these fi-

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practical—Cases are designed for ready access. When case is wall-hung, cover locks at horizontal for use as a dressing tray. Cellophane-wrapped units are clearly marked and have red pull-tabs to indicate whether or not the units have been opened

sturdy—Electrically welded 20-gage steel cases are your assurance of years of service. Closely fitted covers have piano hinges for durability. Strong pull-down fasteners close the covers tight against rubber gaskets, protecting the contents from dust and moisture.

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many sizes and types—You buy Pac-Kit to suit your requirements, whether small shop or large plant, bus, truck, plane, playground, camp. You don't waste money on more kit than you need.

Pac-Kit equipment conforms fully with state and federal specifications.

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P.O. Box 1306 **Greenwich, Conn.**

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(For details, use Key # K-30 on card on page 71)

bers remain flexible and easy to handle even after prolonged soaking in water.

10. Effect of Dead Weight Loading

Ropes of nylon or "Dacron" will withstand high dead weight or continuous loads considerably longer than ropes of natural fibers.

11. Ease of Handling

Ropes of nylon and "Dacron" of about half the weight of natural fiber ropes can be used for most end uses. This is because replacement of natural fiber ropes can usually be made on an equal strength, rather than an equal size, basis. In addition, synthetic ropes are exceptionally flexible. Marked improvement in this property has recently been obtained through modifications in rope construction.

12. Water Absorption

The pickup of water by ropes of "Dacron" and nylon is just over 20 percent of the rope's weight in contrast to nearly 60 percent for natural fiber ropes. The advantage of using a lighter weight synthetic fiber rope is thus magnified when the use involves soaking or wetting of the ropes. The difference in water pickup occurs because of the very low water absorption of these synthetic fibers.

13. Effect of Ice and Low Temperatures

Ice has considerably less effect on ropes of nylon and "Dacron" than on natural fiber ropes because of the low water absorption of the synthetic fibers. In tests of nylon ropes and manila ropes under Arctic conditions, the ropes of nylon retained their normal handling properties better. The same results would be expected of ropes of "Dacron." Low temperatures actually increase the break strengths of nylon and "Dacron" fibers.

14. Flammability

The flammability of nylon and "Dacron" cordage yarn is very low. These yarns melt as they burn if a flame is applied and form liquid droplets. These droplets normally fall away from the yarn bundle and there is no propagation of the flame on the yarn bundle. Ropes made from these yarns are considered to have the same low flammability since manufacturers do not normally add flammable lubricants or finishes during processing.

15. Splicing

Properly made ropes of nylon and "Dacron" can be spliced as easily as natural fiber ropes. In order to maintain a neat looking splice, twist should be held in the free ends of the strands while taking the tucks. The strand end should be taped and, particularly for large ropes, it is helpful to tape the individual strands in a number of places as soon as the end of the rope is un-

SURESEAL MOST SPECIFIED WHERE

- the handling of acids and other corrosive materials demand maximum hand protection.
- production requirements prescribe fast, sure handling of caustic liquids.
- positive protection against crippling and disfiguring accidents is a necessity.
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Surety Sureseal Gloves, (made from Hycar) give positive protection against the greatest number of acids and other corrosive liquids and wear up to 14 times longer than competitive materials. They are more snag, abrasion and puncture-proof and the exclusive Surety Turn-Cuff gives added protection for arms and prevents liquid from getting into the glove.

Tell us your requirements and test a pair today — at our expense. Write on your letterhead naming your glove jobber and you will receive a pair by return mail.

THE SURETY RUBBER CO. CARROLLTON, OHIO

IN CANADA: Safety Supply Co., Toronto

(For details, use Key # K-31 on card on page 71)

THOMPSON'S CENTRI-F ACID PUMP

This pump will dispense acids from carboys and drums, as well as from small, open tanks.

The rate of flow is approximately 5 G. P. M., and the pump will operate at full capacity under a head not to exceed 6 ft.

The intake tube of the pump is 30½" long, below the spout, and is available in PVC (Polyvinyl Chloride), Type 316 Stainless Steel, or Monel.

The unit costs $173.50, and a tripod stand is included so that the pump may always be stored in an upright position.

Order from your regular supply jobber.

THOMPSON MANUFACTURING COMPANY, INC.

152 WEST 12th ST. ERIE, PA.

(For details, use Key # K-32 on card on page 71)

laid. Due to the smooth surface of synthetic fibers, it is advisable to use one or two extra splice tucks over and above the number normally used for manilla.

16. Uses

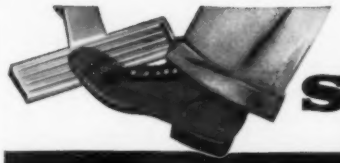
From the above property descriptions, it will be seen that the principal practical difference between ropes of nylon and "Dacron" is that nylon has greater stretch than "Dacron" and will absorb more shock on impact. Where low stretch under load is important, ropes of "Dacron" are recommended. In addition, differences in chemical resistance sometimes dictate the choice between the two.

Nylon and "Dacron" fibers have been used successfully in the following:

Nylon
End to end (ocean) towing ropes
Mooring lines (yachts & ships)
Anchor lines (yachts)
Fish net ropes
Safety ropes
Mountain climbing ropes
Drop hammer ropes
Shovel lines (grain)
Lariats
Boat falls
Flag halyards
Starter ropes
Target tow ropes
Ocean salvage mooring legs
Lobster pot warps
Utility ropes
Textile drive ropes
Sheehan carrier ropes

"Dacron"
Ship docking lines (tug boats)
Running rigging (yachts)
Industrial slings
Lock lines (canals)
Guy ropes (electronic installations)
Utility ropes
Boat falls

Pictures by courtesy of E. I. Du Pont de Nemours & Co., Inc.



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They are fast gaining favor in washrooms for executives and office staffs, also placed near lunch rooms, in company medical first aid rooms, and at various strategic locations throughout the plant for in-between washups. And you have a choice of stainless steel or vitreous enameled pressed steel bowls, the latter in white and five decorator colors ... Bulletin K-1204 gives all specifications. Write today for a free copy to Bradley Washfountain Co., 2229 West Michigan St., Milwaukee 1, Wis.

Maximum in Sanitary Washing Facilities

BRADLEY Duo Washfountains

Distributed Through Plumbing Wholesalers

(For details, use Key # K-33 on card on page 71)

College Course for Truckers

2,723 students have attended the Truck Driver Training School at North Carolina State College during the past ten years, its first decade of service to the trucking industry.

Under the direction of Russell M. Haynie, Jr., the College Extension division course has become an important aid to trucking throughout the nation. Many companies now require prospective employees to take the driver training before employment is offered. Some send men whom they have selected and whom they plan to hire. Students come from all areas of the nation, and most classes are filled in advance.

Each month, the College Extension Division and N. C. Motor Carriers Association offer a four-week training program covering all phases of trucking and truck driving. In the classroom, men study Interstate Commerce rules and regulations, accident prevention and reporting, and defensive driving techniques. Part of the school day is spent behind the wheel of tractor-trailer trucks mastering basic driving skills.

Heating Theme of BRI Program

The effects of heating research on the way that buildings will be both heated and cooled in the next few years will be one of the major topics for discussion at the Building Research Institute's Fall Conferences, scheduled for Nov. 17–19, Shoreham Hotel, Washington, D. C.

As chairman of the program which will set forth "New Methods of Heating Buildings," Mr. John Everetts, Jr. of Charles S. Leopold Engineers, Philadelphia, indicates that he expects this full-day session on the opening day of the Conferences to bring out developments that will have considerable impact on buildings planned for the 1960's. New air heating methods, wet heating systems and radiant heating systems will be presented by researchers in these fields, as well as discussion of new electric heating systems including direct resistance heating, heat pumps and thermoelectric systems.

"And, of course," Everetts said, "no program of this kind would be complete without data on the tremendous progress being made in solar heating, new types of solar collectors now past the experimental stage, new solar energy storage systems, and up to date reports on the solar heated houses currently being studied at several locations in the U. S. and abroad." Speakers for the program will come from all areas of the country.

Other Subjects

Open to the public as well as to BRI members and guests, this conclave of the Building Research Institute is the first of a new type of multi-subject conferences to be conducted by BRI each spring and fall. Other programs during the 3-day period Nov. 17–19 will deal with "Sandwich Panel Design Criteria," "Design Potential of Metal Curtain Walls," "Modular Coordination," "Building Research, International," and a complete Building Research Workshop. The latter will be concerned with manufacturers' individual problems related to component construction; with proposals for new or expanded building research by colleges, universities and private laboratories; and with a review of current efforts by documentarians to develop new systems of indexing and classifying the ever-growing mountain of building science literature being produced in this country and abroad.

According to Thomas E. Werkema, industrial research analyst, Dow Chemical Co., who is general chairman of the event, complete programs and registration material for the Conferences will be ready for distribution early in October, and may be obtained on request from Harold Horowitz, Asst. Director for Technical Programs, Building Research Institute, 2101 Constitution Ave., Washington 25, D. C.

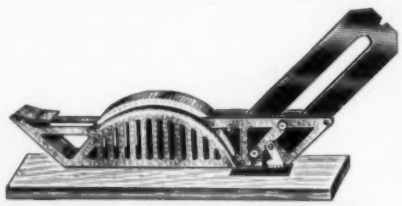
1959 Revised Electrical Code

The new 1959 National Electrical Code is now in print and available, according to the National Fire Protection Association.

The 1959 Code is a complete revision of the previous edition issued in 1956. The official text, now published by NFPA in a sewed, paper-backed, pocket-size edition, has 528 pages.

It incorporates a substantial number of important new electrical safety provisions adopted at the recent NFPA annual meeting. There have been extensive editorial revisions and clarifications of the text, including placement of the tables and diagrams, formerly in single chapter, in their appropriate spots in the text.

A most important change is a completely new system of numbering sections and paragraphs. Hereafter references to the Code will use the new numbers. The new NFPA edition includes a cross reference index to the previous numbering used in the 1956 Code. Copies of the Code (NFPA No. 70, 528 pages, $1.00 per copy) may be ordered from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.



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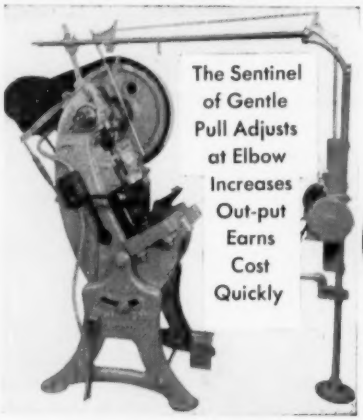

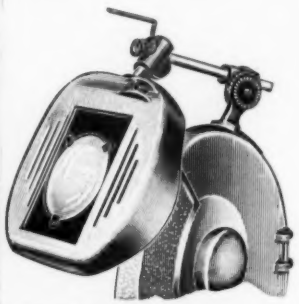

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For details, use Key # 34 on card on page 71)

THE FIRE FRONT

Out-Contracting for Guard Services

With the trend more and more toward out-contracting of industrial plant services—maintenance, security and the like—firms may be weighing the relative merits of going outside with one of their plant problems or of doing it themselves.

Here's one side of the story—a list of advantages of having the job done outside—compiled recently from a survey by Pinkerton's National Detective Agency, Inc., which provides uniformed-guard plant protection services in thousands of industrial installations.

Some of these client reasons for satisfaction with out-contracting were new ones to Pinkerton's, who thought they knew all the answers for doing it their way. Most of the motives apply to any out-contracting, regardless of the service involved.

Reasons advanced by industry—not necessarily in order—include:

Lower base cost—the contractor supplies efficient manpower at going rates in his field of operation; similar work on a company force is often done by employees transferred from other plant jobs, at unrealistic wage rates.

Elimination of secondary costs—no fringe benefits (they're handled by the outside contractor), no vacations; no hourly rate differentials (for night, Sunday and holiday shifts), no costs of uniforms or side arms, no record-keeping on all these items, no payroll costs.

No absentee problem—that's the contractor's headache and he has reserves to keep posts manned in spite of sickness, etc.

No recruitment and training problems—the force you hire consists of trained pros, under expert supervision.

Freedom from disciplinary problems—your contractor will shift personnel at your request without creating employee-management friction.

Freedom from added organizing and collective bargaining—if organized, a company guard force (under Taft-Hartley) must have a separate union from the rest of the plant. But with out-contracting, even if guards are unionized, its the contractor's job to negotiate.

Extra personnel readily available for temporary or emergency needs.

Security clearance—when needed, the outside contractor assigns men cleared for classified production.

Elimination of personal ties between guards and employees—the buddy-buddy factor that engenders favoritism, laxity and even collusion.

Freedom from outside pressures for hiring—this can often mean pressure from local police and firemen, even politicians.

Freedom from administrative headaches—your personnel or industrial relations manager can devote all his time to his main job, instead of spending much of it on schedules, vacations, replacements, discipline and all-around supervision of the plant protective service.

July Losses Rise

Estimated fire losses in the United States during July amounted to $82,334,000, the National Board of Fire Underwriters has reported. This loss represents an increase of 1.9 percent over losses of $80,782,000 reported for July, 1958, and an increase of 5.7 percent over losses of $77,867,000 for June 1959.

Losses for the first seven months of 1959 now total $643,200,000, a decrease of 2.8 percent from the first seven months of 1958, when they amounted to $662,017,000.

Fire Contest

More than 1,500 cities, industrial firms, military units and government divisions are expected to participate in the National Fire Protection Association's 1959 Fire Prevention Contest. The contest, an international competition to provide recognition for excellence in the field of fire safety education and performance, is in its 32nd year. The 1959 entries are likely to exceed all previous totals, according to Percy Bugbee, general manager.

The fire prevention programs to be described in the entries are now in action in hundreds of cities and industrial plants throughout the United States and Canada, as well as at military and government installations.

City entries are classified and judged according to the size of the community, Bugbee said. The only prerequisite to entry, he added, is a fire prevention program. Entry forms, returnable by November 30, are available from the NFPA offices in Boston. There are separate forms for municipal, industrial, government and military entries.

Top winners in the municipal division last year were Oshkosh, Wisconsin, and Ocean Falls, British Columbia.

Ford Motor Company's M-E-L Assembly plant at Pico-Rivera, California, took honors for the industrial division.

First in the government division was General Services Administration Region #3, Washington, D.C., closely followed by the Chalk River, Ontario, installation of Atomic Energy of Canada, Ltd.

U. S. Army's Fort Ord, Wright-Patterson Air Force Base, the Hingham (Mass.) Naval Ammunition Depot, and HMC Dockyard Esquimalt in British Columbia received the grand awards in the military division.

The U. S. Coast Guard, recognizing the danger of boat fires, requires approved extinguishers on all boats over a specified size. Every boat powered by gasoline should have an extinguisher. The approved dry chemical unit shown is impervious to moisture, corrosion and vibration; requires little maintenance; has finish that matches boat woods.

Fire Losses OFF the Job

Every car should be equipped with a fire extinguisher. A unit like the one shown kills oil, gasoline, grease and electrical fires and is therefore excellent for automotive use; requires little attention and is easily refilled.

Thousands of man-hours are lost annually as the result of disabling injuries suffered in home fires and, although there are no claims to be paid by the company, it does mean money out of the corporate pocketbook in terms of lost time and reduced efficiency.

For a man seriously burned in a home fire is just as much a loss to his employer as if he were burned by a splash of molten metal while on the job. And even after he has returned to work, if the fire resulted in a major financial loss or a tragedy to loved ones, the morale-shattering experience will certainly be reflected in his work.

Home fires today are the number one problem for fire protection officials. Last year alone, five out of every seven fires reported in the nation started in a home or apartment and this staggering total of some 565,000 home fires resulted in more than $300 million worth of damage.

In addition to the monetary loss, it is estimated that home blazes annually cause more than 5,000 tragic deaths from burns and from other fire injuries such as asphyxiation, falls and being hit by falling objects. Another 30,000 persons suffer disabling though non-fatal injuries.

This growing toll points up a

paradox in the country's industrial picture. Although it is generally agreed that a careful worker on a machine in the plant is a careful man at home with tools, very little of the in-plant **fire safety** awareness has been transferred to the worker's personal life. In contrast to industrial establishments where a full line of fire protection equipment covers each hazard, **few homes have even one fire extinguisher.** Where industry has a standard fire alarm procedure, most homeowners do not even know the telephone number of their local fire department.

The two greatest danger spots in driving, overheated motors and defective motor wiring annually contribute to car fire losses totaling $17 million. Here again, the owner has the choice of watching his car go up in flames or, through the use of an extinguisher mounted in the car, of keeping the damage confined to a minor repair bill.

Nowhere is the need for proper fire protection equipment as vital as it is on boats. For when a fire breaks out on a boat, there is water, water everywhere—but this is one of the worst substances to put out burning gasoline, the usual cause of boat fires. The United States Coast Guard, recognizing the danger inherent in boat fires and the need for proper protection, requires extinguishers or extinguisher systems on all boats under its jurisdiction. But all boat users, regardless of the size of the craft, have need for a good, reliable fire extinguisher to combat blazes caused by cigarette sparks or shorts in electrical equipment.

Fire Protection Is Available

Much of the apathy and apparent disregard for installing adequate fire protection for personal safety has been due to a lack of

(Continued on page 65)

Mean Fire Losses ON the Job

the home are the kitchen and the living room. More than half of all home fires start in these two rooms because of grease fires on the kitchen stove, electrical causes and the careless use of cigarettes and matches. Smoking in bed and electrical, heating or rubbish-caused fires in the basement, combined with the above two, account for three-quarters of all home fires.

Following the theory that a home burned to the ground is the result of a small blaze that got away, much of the tragedy and financial loss accompanying home fires could be averted through the use of proper protective equipment. As in industry where each hazard has the appropriate protective device, portable fire extinguishers near the kitchen stove, in the basement stairway and conveniently placed for use in bedrooms and the living room can be the means of snuffing out a small fire before it reaches dangerous proportions.

Transportation Fires

Much the same story can be told in other areas of personal fire protection, such as on cars and boats. It is estimated that each year there are between 600 and 700 deaths resulting from some 150,000 car fires and that high speed thruway

The kitchen is the great fire-danger spot in the home. New easy-to-operate dry powder extinguishers that are effective and, easy to refill are now available in a range of colors to blend with kitchens and home appliances.

DRY CHEMICAL "ENERGIZED" EXTINGUISHERS

A new line of hand portable dry chemical fire extinguishers, the Sentry Energized series, is announced by Ansul Chemical Co. The Extinguishers, in 10, 20 and 30 pound dry chemical capacities, are based on the stored pressure principle, and operation is simplified by an arrangement which allows a continuous flow of dry chemical to be controlled and directed with one hand. The operating lever on the extinguisher head locks down for activation so the discharge can be aimed and controlled with a shut-off nozzle on the hose leaving the operator free to open doors, shut off valves, etc.

A large fill cap opening and a permanently installed pick-up tube make it easy to refill the unit and replace the head quickly. The lock-down operating lever cannot be released until pressure in the extinguisher is well below operable range, giving visual warning that recharge is needed. A visual seal and a ring pin, which prevents accidental activation, also show when an extinguisher may need recharging. Maintenance is reduced by an easy-to-read pressure gauge which indicates the operating range in color. The models have interchangeable heads designed for disassembly without tools, if necessary.

For details, use **Key # FP-1** on inquiry card on page 71.

FIRE-RETARDANT COATING

An effective fire-retardant coating, developed at the Albert Chemical Works in Wiesbaden, Germany, is now available in the United States through American Vamag Co., Inc. This fire retardant material, known as Albert Fireproofing Compound "DS," has been approved by Canadian Underwriters' Laboratories whose standards and procedures are identical with those of the United States Underwriters' Laboratories. The coating

not only prevents fire from spreading, but also protects the surface to which it is applied.

In a test with a blow-torch flame at 1800°F. trained on a wood panel for a full sixty minutes, the portion of the panel treated with the Albert "DS" compound was neither damaged nor scorched. The untreated portion burned away completely. Another demonstration is shown in the accompanying picture. A fire, which was started in the untreated half of the structure, swiftly consumed this section. The other half, to which the fireproofing

FIRE PROTECTION DEVELOPMENTS

compound had been applied, received little damage.

It can be applied by brush, paint roller or spray gun to every kind of building material: timber, hardboard, acoustic board, insulation board, wood chip board, plywood. It can be overpainted to provide a decorative finish.

For details, use **Key # FP-2** on inquiry card on page 71.

NEW DRY POWDER EXTINGUISHER

The U. S. Coast Guard has issued approval for a new portable, dry chemical fire extinguisher for boats, the "Protexall Deluxe" manufactured by American LaFrance. Occupying 15 by 4 inches of space, its non-toxic dry chemical has the fire-killing power of four one-quart carbon tetrachloride or chlorobromethane units. Already approved by Underwriters' Laboratories, it will snuff out fires caused by: short circuits in electrical wiring, spilled gasoline, malfunctioning cooking stoves, spontaneous combustion in storage areas, etc. The new unit can be used effectively at a considerable distance (8 to 10 feet) and does not give off poisonous fumes or gases or form a foam or liquid.

Finished in durable enamel in coppertone color, the extinguisher requires no recharging or other attention unless used. It employs a chemically-treated dry powder that is impervious to moisture. When the extinguisher's handles are squeezed together, powder spurts forth in a stream expelled by a force of 150 pounds of compressed air. The extinguisher's fire-killing powder is harmless to people, pets, and food. Powder is easily cleaned with a damp cloth. Pictorial instructions on the nameplate facilitate quick use in an emergency.

For details, use **Key # FP-3** on inquiry card on page 71.

FIREMAN'S SAFETY BOOT

The Fire-Master safety boot, manufactured by Lehigh Safety Shoe Co., includes a new, highly flexible anti-puncture midsole, plus a steel toe cap, to protect the firefighter against the two most-frequent causes of foot injuries: falling heavy objects and sole-punctures. The specially-shaped Lockrim steel toe cap withstands pressures up to 2000 lbs. and it takes 235 lbs. of thrust to drive a 10-penny nail through the new midsole construction. Brilliant yellow knee-stripe and sole afford improved visibility in smoke and dark. Many other improvements of special advantage in fire-fighting from Lehigh Safety Shoe Co., Emmaus, Pa.

For details, use **Key # FP-4** on inquiry card on page 71.

SAFETY BENCH & DRIP CANS

The problem of cleaning small metal parts in gasoline is solved by a new safety bench can introduced by Eagle Manufacturing Co. To minimize waste and speed the operation of cleaning small parts or swabbing larger one, Eagle has designed special features into the new can approved by Factory Mutual for industrial use. It has a spring-actuated dasher, which is perforated and flush with the top of the can, to reduce evaporation losses and minimize explosive vapors. The dasher, coupled with baffles, protects contents of the can from fire. The entire can is constructed of heavy-gauge coated sheet steel, with red enamel exterior finish.

Also announced is a new drip can, to reduce fire hazards where a faucet may drip or where a slow leak is likely. The safety bench cans are available in one- and two-quart and two-gallon sizes. The drip can comes in two-quart size.

For details, use **Key # FP-5** on inquiry card on page 71.

FIRE PROTECTION FOR SMALL AREAS

A fire extinguishing system designed for small, hard-to-protect areas has been developed by the Cardox Division of Chemetron Corp. The method makes carbon dioxide fire extinguishing techniques

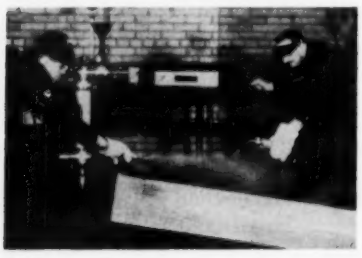
available economically in warehouses, industrial plants, laboratories and other small areas with hazardous conditions. It utilizes high-pressure liquid carbon dioxide in easily stored cylinders. A control mechanism with a continuous monitoring device assures that the system is operable at all times. It will automatically sound a predischarge alarm, release doors and windows, shut off fans, motors and machinery, and perform other functions. Instantly actuated by signals from smoke detectors, flame detectors or other sources, it is available with automatic, manual, or combination methods of actuation. All methods include manual push-button stations.

For details, use **Key # FP-6** on inquiry card on page 71.

FIRE RESISTANT HYDRAULIC FLUID FOR MINES

A fire resistant hydraulic fluid designed specifically for use in all types of hydraulically-operated mining machinery is being produced by the Shell Oil Co. It is a water-in-oil emulsion-type fluid with a built-in "fire extinguisher" which smothers fires before they can get started. The Bureau of Mines has approved Shell 3XF Mine Fluid, using test methods that determine fire-resistance properties. The new fluid is supplied as a specially formulated oil concentrate (containing emulsifiers) which is easily mixed with ordinary water. Each microscopic droplet of water is completely surrounded by a tough lubricating film of oil. On exposure to open flame, high voltage arcs or hot metal, the fluid's water content is immediately released as a steam blanket to quench any source of combustion. (See picture.)

It will not adversely affect packing materials, seals or hoses. The emulsion type hydraulic fluid has all of the oil characteristics vital to proper functioning of hydraulic equipment. It won't corrode ferrous or nonferrous metal, or attack paints; it is entirely compatible with normal system components; film strength provides excellent anti-wear and anti-scuff protection for closely fitted machine parts.



For details, use **Key # FP-7** on inquiry card on page 71.

HOSE CABINET

A fire hose cabinet with a foolproof back door rack has been designed by the W. D. Allen Co. The hose is racked on the door instead of inside the cabinet. Door swings out a full 180°, preventing hose snag. A hose clip makes the cabinet semi-automatic, and operable by one man. The tamper-proof glass latch shield is scored for safe, easy breaking in an emergency. The cabinets are steel, with frame welded to body, and have holding capacities of up to 100 feet of 1½" linen hose. The manufacturer estimates that each Hosegard installation saves 25% to 30% by eliminating the expensive pin type rack and the time needed to install the hose. The entire unit is approved by Underwriters' Laboratories. Available with extinguishers and fire department valve.

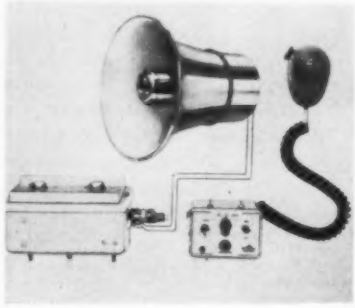
For details, use **Key # FP-8** on inquiry card on page 71.

VERSATILE PIPE HANGERS

New adjustable pipe hanger rings for pipe sizes from 4 to 8 inches, are announced by Automatic Sprinkler Corporation of America. The Auto-Grip design permits use of this single type of hanger in most applications in place of a variety of other types of hanger rings.

The universal design for large pipe sizes consists of a hinged metal band and a captive locking insert for attachment to a threaded hanger rod. Attachment is a simple procedure requiring no tools. The insert is self-locking by spring action reinforced by the weight of the pipe, and works to relieve expansion pressures on hanger rod. It is counter bored to prevent cross-threading. Approved by Underwriters' Laboratories and Factory Mutual.

For details, use **Key # FP-9** on inquiry card on page 71.



SIREN & AMPLIFIER

The transistorized Penetrator, with a total weight of less than 15 lbs., is a compact combination electronic siren, public address and radio amplifier system designed by Fyr-Fyter Co., for mobile use on police cruisers, fire department vehicles, ambulances, industrial emergency cars, etc., or as a stationary warning and communication system. Model 12PT50 has a 50-watt output siren which emits a powerful, distinctive warning.

A hand-size control box is equipped with a new 3-way selector switch. Driver has finger-tip control over manual or automatic siren operation. PA and radio amplification. Override horn relay enables the operator to control siren at any desired pitch by simply depressing the horn ring. With switch "on," siren will warble (rise and fall) automatically in either "PA" or "Radio" position.

Additional features include: low battery drain, from ½ amp on

standby to 4 to 5 amps when used as siren; easy to install and service; weatherproof, impervious to hot or cold temperature extremes, snow, ice, rain, dust and dirt; can be used with either a carbon, transistor or reluctance type microphone; does not interfere with two-way radio operation.

For details, use **Key # FP-10** on inquiry card on page 71.

NEW DRY CHEMICAL PORTABLE EXTINGUISHERS

Two new pressurized dry chemical portable fire extinguishers have been announced by Walter Kidde & Co. The new models come in 2½ and 5 pound capacities and were designed for simplified, self-evident operation in a fire emergency. Aiming the discharge nozzle at the base of the fire and depressing the actuating lever releases a cloud of dry chemical which envelops the blaze.

Lightweight and functionally designed, they are easy to carry and handle. Pressure gauges, recessed in the housing for added protection, tell at a glance if they are charged and ready for action. Their operating range of from 110 to 180 psi means that they can be easily and quickly recharged with air or nitrogen. Special wall brackets discourage accidental discharge. Approved by Underwriters' Laboratories and Factory Mutual.

For details, use **Key # FP-11** on inquiry card on page 71.

PUNCTURE PLATES FOR STORAGE TANKS

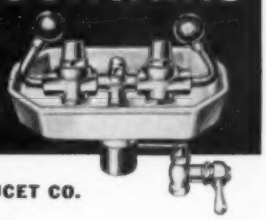
Installed on fixed-roof liquid storage tanks, a new device known as the Puncture Plate admits light and air to the tank interior during

IN EMERGENCY... contaminated eyes are instantly cleansed of dangerous particles and chemicals by *controlled* water streams from HAWS Emergency Eye-Wash Fountains. This "split second safety" before medical aid arrives can mean the difference between temporary eye irritation and permanent eye injury! HAWS will provide emergency facilities best suited for your safety program—minimizing hazards, reducing claims, lowering insurance costs. Get the facts by writing today for illustrated literature!

HAWS EYE-WASH FOUNTAINS

MODEL 7100
(old model 8930)

Basic eye-wash model with enameled iron bowl; quick-opening valve for manual operation; adaptable to treadle operation; chrome plated brass water pressure regulators and twin fountain heads. Wall mounted and pedestal models available.



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50 YEARS

HAWS DRINKING FAUCET CO.
Since 1909
1443 FOURTH STREET
BERKELEY 10, CALIFORNIA

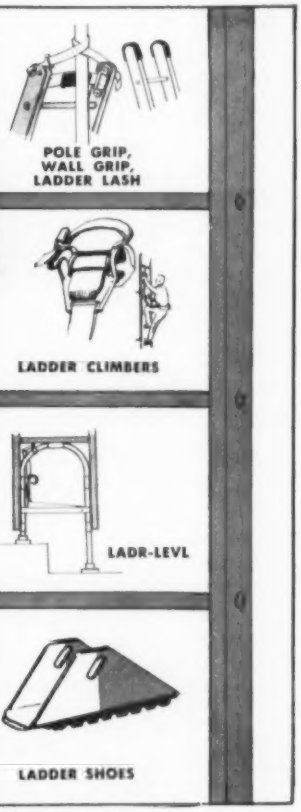
EXPORT DEPARTMENT: 19 Columbus Avenue, San Francisco 11, California, U.S.A.
(For details, use Key # K-35 on card on page 71)

IT'S *Safe-Hi* FOR

LADDER SAFETY

Safe ladders can end loss of time and money due to ladder accidents. Make sure your ladders are safety-sure with these Safe-Hi ladder safety products. One test will show you why Safe-Hi products give you more safety per dollar every time!

See your safety dealer or write us for complete information.



Safe-Hi
ROSE MANUFACTURING CO.
2700 W. Barberry Pl.
Denver 4, Colorado

(For details, use Key # K-36 on card on page 71)

maintenance work, and facilitates the use of hydraulic towers in case of fire.

The unit, manufactured by National Foam System, Inc., is a steel assembly holding a strong plastic sheet or "skylight" which, though vaporproof, is readily penetrated by the gooseneck of the foam tower in the event of fire.

With the plastic sheet in place, the Puncture Plate makes it easier to reach the burning surface of the liquid through a foam tower. In tanks where foam chambers have not been installed, the combination of plates and hydraulic towers provides a practical and flexible means of foam application.

With the plastic sheet removed, Puncture Plate openings allow plenty of air and daylight within the tank for cleaning, inspection, and maintenance. Mechanical ventilation and artificial illumination, a fire hazard in itself, are no longer needed.

For details, use **Key # FP-12** on inquiry card on page 71.

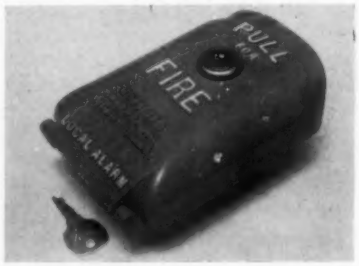
PRESSURIZED DRY CHEMICAL EXTINGUISHER

Fyr-fyter, Pyrenee-C-O-Two, and Buffalo fire equipment sales outlets are introducing a new, 2½"-lb. Pressurized Dry Chemical multipurpose industrial fire extinguisher. The new fire killer is being marketed in two Safety Twin models, patterned after widely-used larger (5 to 30-lb. capacity) industrial dry chemical extinguishers. Both Factory Mutual and Underwriters' Laboratories approved, the lightweight extinguisher is designed so that it can be used with ease and effectiveness by both male and female employees. Special features include a new grip fit handle. No inverting or pumping is necessary.

The extinguisher is charged with Formula H, an improved, newly patented dry chemical extinguishing agent. Highly resistant to moisture, heat and compaction, the chemical will flow freely and perform under all conditions. One squeeze of the handle releases the powder in a wide-angle, flat dense pattern. Formula H powder contains no dangerous chemicals, produces no toxic fumes and is a nonconductor of electricity.

Extinguisher has an operational range of from 10 to 12 feet. A pressure gauge permits frequent visual inspection of the extinguisher's operational readiness. After use, it can be inexpensively refilled and repressurized. Suitable also for trucks, passenger cars, boats, trailers, garages, etc.

For details, use **Key # FP-13** on inquiry card on page 71.



MODERNIZED FIRE ALARM

Notifier's latest model, Underwriters' listed manual break-glass fire-alarm station, Model BG-1 is designed for installation as part of either a manual or an automatic fire detection system. Pulling down its lid causes key latch to break glass and release a switch to activate the alarm. Cannot be activated by accidental bumping. Modern design eliminates need for hammers or glass-breaking mechanisms.

A patented lock mechanism allows periodic tests by authorized personnel. A weatherproof model, BG-1W, for outdoor use, is available. Pre-signal models are available for use in buildings where a general alarm might cause panic.

For details, use **Key # FP-14** on inquiry card on page 71.

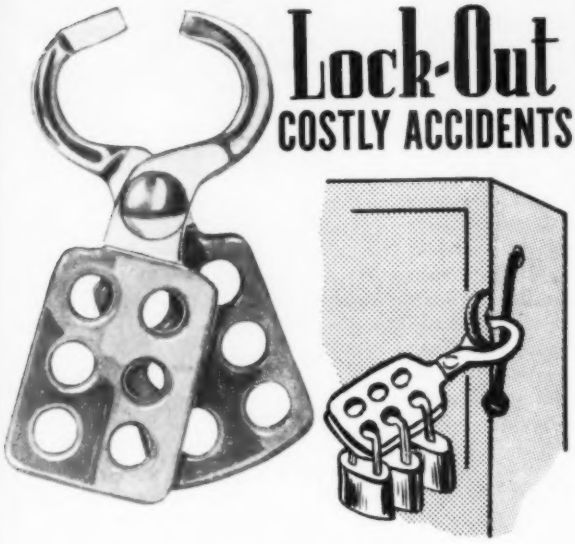
IMPROVED FIRE PUMP

An improved, water dispensing fire pump, worn pack-style on the back of the fire fighter, is available from the D. B. Smith Co. The Indian Fire Pump No. 80 utilizes a gland nut with a special "o" ring as the seal, to replace the plunger and provide longer life without binding or leaking. The tank, zinc-grip steel or solid copper, has a 5-gallon capacity, and is air-conditioned and form fitting, and has a leak-proof filler cap. Pump and valves are brass; piston is heavy synthetic rubber; all parts removable. The hose section has automatic shut-off control, and the brass nozzle is adjustable to any pressure desired. Adjustable carrying straps have snap ends.

For details, use **Key # FP-15** on inquiry card on page 71.

BONDED DACRON FIRE HOSE

A new superior strength, longer-wearing fire hose called Ambassador has been introduced by the Fyr-Fyter Co. The double-jacket, 600 lb.-test hose is designed for both municipal and industrial fire department use. Both the outer and inner jackets of the hose are frabricated 100% of resilient Dacron polyester fiber, and are permanently "rubber bonded" together to pre-



Lock-Out COSTLY ACCIDENTS

Permits several workers to "feel safe" while working on equipment. No one can "turn on" the switch or valve until the last worker has removed his lock.

OSBORN *Manufacturing Corp.*

P.O. Box 167

WARSAW, INDIANA

(For details, use Key # K-37 on card on page 71)

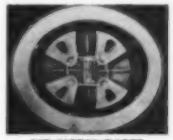
***Now!* Another NEW "HATFUL OF SAFETY" by FIBRE-METAL**

SuperLite®

ALUMINUM SAFETY HATS & CAPS

● *SuperLite* "shells" are of tough aluminum alloy, tempered and ribbed for maximum resistance to blows from flying or falling objects. *SuperLite's* exclusive Polyethylene suspension gives maximum shock absorption and unmatched comfort. It is *and remains* flexible, conforms to head shape, and is deep fitting to "stay put" in any working position.

TOUGH... ribbed crown for highest impact resistance. ● **COOL**... reflects, does not absorb heat. Well ventilated. ● **COMFORTABLE**... men prefer and LIKE to wear SuperLite! ● **ONE SIZE FITS ALL HEAD SIZES.** ● **NO LACING**... exclusive design! Only headband ever needs replacing... a big saving! **TOPS IN HYGIENE**... easily sterilized. Waterproof. **NON-TOXIC**... mildew- and fungus-proof Polyethylene suspension. No deterioration. ● **FULLY TESTED**... to exceed highest safety standards. ● **LIGHT-WEIGHT**... trim and good looking.



NO METAL PARTS in Suspension

Bulletin No. 55 — The FIBRE-METAL Products Company — CHESTER PENNA

In CANADA: Fibre-Metal (Canada) Limited, Toronto

The WORLD'S LARGEST MANUFACTURER of SUPERIOR PROTECTIVE EQUIPMENT

Visit us at the National Safety Show Chicago— Booth 179–180

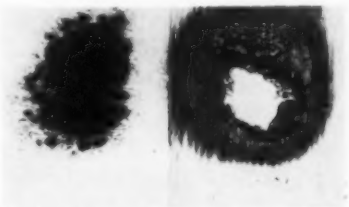
(For details, use Key # K-38 on card on page 71)

vent concealed wear to the hose. With an extruded all-synthetic tube, freezeproof down to 65° below zero, the Ambassador hose offers maximum resistance to the effects of mildew, abrasion, water, chemicals, etc. It can be dragged for miles without fraying. Its service life is five times greater than that of conventional hose, the company reports. Dacron has a water absorbency rate of only 0.5% as compared to cotton's 24 to 27%. The hose is therefore easier to handle when wet, stays flexible, won't get stiff, racks compactly and unloads fast. It can be stored away soaking wet, eliminating the need for drying equipment or a standby load of hose.

For details, use **Key # FP-16** on inquiry card on page 71.

FIRE RESISTANT PAINT

Fire-Poof is the name of a new fire resisting paint introduced by Nor-Chem Products, Inc. The paint chemically snuffs out flame and



eliminates smoke, as proved by blowtorch fire tests conducted by The United States Testing Company. Firemen say that slowing down a fire even five minutes can mean the difference between a minor blaze and a total loss. The photograph shows the results of a two minute blowtorch test upon two ¼" thick panels. The panel at right was unpainted, while the one at the left has been Fire-Poof painted. Within two minutes of flame application, the unpainted section had burned completely through and left blazing, while the "Fire-Poof" coated section was merely scorched, without any remaining flame or smoke.

For details, use **Key # FP-17** on inquiry card on page 71.

FIRE-RESISTANT HYDRAULIC FLUID

Monsanto Chemical Co. has announced the development of a new type of synthetic fluid for industrial hydraulic use which lubricates like a premium oil, is fire-resistant and all but impossible to wear out. Trademarked "Pydraul A-200," the new fluid is a halogenated hydrocarbon formulation.

The fluid will not ignite spontaneously at temperatures which are hot enough to melt aluminum. Its extreme stability prevents it from decomposing so that, with occasional filtering for atmospheric dirt, the fluid should last indefinitely, the company states. "Pydraul A-200" is uniquely compatible with other all-synthetic hydraulic fluids. It can be used as make-up in present synthetic fluid-equipped systems with little or no conversion of equipment.

For details, use **Key # FP-18** on inquiry card on page 71.

POCKET-SIZE HAZARDOUS VAPOTESTER

A pocket-sized tester for the detection of hazardous vapors, called the Bantam Vapotester, has been developed by Davis Emergency Equipment Co. for quick, on-the-spot checking of work areas. The strong, light-weight combustible gas analyzer is self-contained, has long battery life, and is easy to operate. One knob turns the unit "on," and zeros the meter. A pilot light illuminates the dial and its easily read scale. Sample hose and aspirator bulb snap instantly into either side of instrument for left or right hand use. Compact leather case holds bulb, 5-foot sampling hose with short probe, spare battery, screw driver and spare filament. The unit is not affected by vapors of gasoline containing tetraethyl lead.

For details, use **Key # FP-19** on inquiry card on page 71.

TWO NEW PORTABLE EXTINGUISHERS

Two new pressurized wet chemical portable fire extinguishers have been announced by Walter Kidde & Co. Inc. The new 2½ gal. water and 2½ gal. loaded stream portables were designed for operation by anyone picking up a unit in a fire emergency. Other features cited are: Center balanced, they are easier to carry; rugged pressure gauges, recessed in the handle for added protection, tell at a glance if they are charged and ready for action.

Kidde's new wet chemical portables are approved by Underwriters' Laboratories and Factory Mutual. The water unit is suitable for use on fires in ordinary combustibles such as wood, paper, or cloth, while the loaded stream extinguisher can be used on either ordinary combustible or flammable liquid fires.

For details, use **Key # FP-20** on inquiry card on page 71.

FIRE FIGHTER'S SUIT

A new fire-fighter's suit, designed of fabrics 50 percent lighter than conventional materials, has been announced by Mine Safety Appliances Co. The M-S-A Fireman's Bunker Suit is made of flameproofed aluminized fabric which reflects 90 percent of radiant heat, and enables the fire-fighter to work closer to burning areas. The coat of the suit is equipped with detachable rubber lining, aluminized snap fasteners, reinforced shoulders, two flap pockets, and sleeves designed for easy arm movement. The trousers feature detachable rubberized lining, two large hip pockets, adjustable take-up waist straps, and brass suspender buttons.

For details, use **Key # FP-21** on inquiry card on page 71.

FIRE FIGHTING SPHERE

Resembling a cannon ball, Ansul Chemical Company's multi-purpose fire extinguisher, the Monitor, features a spherical design and one-hand operation. The shape of the 2½-pound dry chemical fire extinguisher permits it to be placed in a minimum amount of space. The spent cartridge can be instantly replaced after use, and uninterrupted fire protection is possible, with the use of spare cartridges. Each Monitor recharge is filled, pressurized and sealed during manufacture, and the unit is approved by the Underwriters' Laboratories. No pressure gauge is required because the owner can determine the proper charge of gas by weighing. The cartridge remains fully charged indefinitely—provided it has never been punctured.

The unit's hanging bracket also serves as a locking device to avoid accidental discharge. When the unit is removed, a squeeze of the trigger-grip releases a steady stream of dry chemical. The rated effectiveness of the revolutionary extinguisher is equal to eight pump type, one quart carbon tetrachloride extinguishers. The unit's spherical design permits effective one-hand operation and accurate control of the extinguisher's flame killing stream.

For details, use **Key # FP-22** on inquiry card on page 71.

FLAMMABLE LIQUID FAUCET

A fume-tight, spring-loaded chemical faucet for dispensing flammable and corrosive liquids,

and many acids is available from the Eco Engineering Division, Economy Faucet Co. The faucet, made of stainless steel, can be used for drum dispensing or installed in standard piping systems. To dispense liquids, faucet handle is pulled forward manually against coil-spring pressure. The faucet is self-closing, insuring positive shut-off when not held open. Other features include: an anti-flash screen which prevents flame propagation in the dispensing of flammable solvents; "O" ring seals to eliminate leakage; and a shank guard which prevents the operator from jamming the faucet in an open position. The unit can be cleaned quickly and thoroughly without special tools. The faucet, Model U-009, has Factory Mutual approval.

For details, use **Key # FP-23** on inquiry card on page 71.

Fire Losses Off the Job
(from page 57)

education in the need for adequate home fire protection and to a lack of suitable fire protection equipment for personal use.

Until recently, homeowners either had to rely on inexpensive extinguishers that in most cases offered no real protection or they had to make the jump to professional equipment such as that found in plants; bigger, heavier and higher priced than was needed for home and personal fire protection. This often meant that the homeowner had to pay $45, $50, or $60 for a heavy extinguisher, so unwieldy that his wife could not use it.

A major break-through has, however, been established. A little over a year ago a leading industrial fire protection equipment manufacturer took the time-tested dry chemical extinguisher and adapted it for personal use. As a result, homeowners are now able to have a professional-quality, Underwriters' Laboratories approved extinguisher designed for personal use for under $20.

Home editors of newspapers, magazines and television stations have recognized the value of the compact new dry chemical extinguishers and are even now educating their readers and viewers to the advances made in field of home protection. Automotive editors and others are emphasizing the value of and need for good, reliable extinguishers in cars and boats.

The new extinguishers are small, light weight, easy to use and colorfully styled to blend with kitchen and home decoration, as well as boat finishes. Despite their compact size, these dry chemical extinguisers are equal in fire-killing power to four quarts of carbon tetrachloride or other vaporizing liquids. Unlike carbon tetrachloride and other dangerous chemical liquids, the fire-killing powder is absolutely harmless to people, pets and food. After use, the powder is as easy to clean up as spilled flour, using a damp cloth or vacuum cleaner.

The dry chemical is effective against all classes of fires: Class A (wood, paper, fabrics, rubbish); Class B (burning grease, cleaning fluid, oil or gasoline) and Class C (electrical fires in car motors, refrigerators, wiring and other electrical equipment). Using compressed air to expell the powder, the extinguisher has a pressure-indicating dial that shows the unit is always ready for use. Dry chemical units do not require refilling until they are used. If unused, the powder will last a lifetime.

Fire in the home—in cars and boats, in summer camps and workshops—is an ever-present and terrible danger. Some of the thousands of people who were mained by fire last year may well have been your own employees. Certainly families who can afford $25 electric can openers, $75 rotisseries and $300 television sets are easily able to raise the $20 that it costs for a good, reliable personal fire extinguisher.

Take the leadership in your organization—make your employees aware of home fire dangers and urge them to obtain safe protection by installing reliable fire extinguishers in their homes, cars, and boats. It will pay rich dividends in reduction of lost time and the pain and misery of fire-caused injuries.

Pictures by courtesy of American LaFrance Corp.

(Use Key # K-39 on Inquiry Card on page 71)

THE POSITIVE LADDER SAFETY DEVICE LOCKS-IN-A-NOTCH!

Prevents death and injuries from falling. If climber starts to fall, device locks in a deep notch on carrier rail and limits fall to approximately 6 inches —distance between notches.

LOCKS AUTOMATICALLY and INSTANTLY—HOLDS SECURELY

Will catch and hold workman if he starts to fall, even if unconscious. Cannot slip on down ladder. Requires no attention from climber; he climbs in normal manner. Inexpensive. Easy to install; 3 men can clamp it to ordinary ladder in few hours. Clamps to any rung ladder, peg ladder, pole or framework. No welding or cutting. Notched rail hot-dipped galvanized. Entire equipment rust and corrosion proof. Can be kept free of ice by applying heat inside the carrier rail. In use approx. 11 years. Approved by Safety Engineers and Government Agencies throughout country. Patented. Manufactured only by

SAFETY TOWER LADDER CO.
1024 Burbank Blvd., P.O. Box 1052
BURBANK, CALIFORNIA

(Use Key # K-40 on Inquiry Card on page 71)

What the Fire Protected Press Should Have

Maintenance of production is our primary concern, states Glenn P. Smith, Director of Engineering, of the Atlantic Tubing and Rubber Co. located just outside Providence, Rhode Island. "Any event which could cause 'down time' is of vital concern to us," he explains.

According to Mr. Smith, Atlantic has gone out of its way to purchase the best rotogravure presses and establish maintenance procedures to minimize mechanical stoppages. Similarly, the company knowing the fire danger of flammable rotogravure inks has provided safety equipment to guard against press damage or inventory loss from this threat.

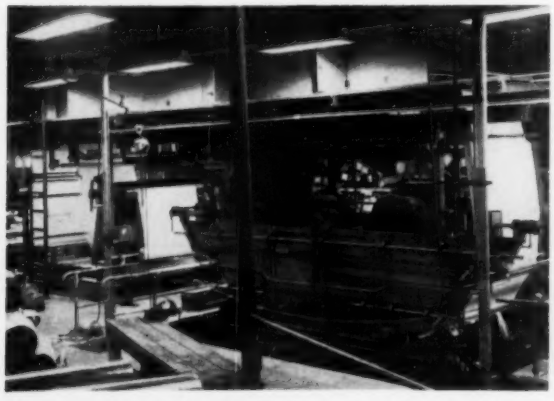
Let's see how Atlantic approached the purchase of, and protection for, a new 6-color roto press used for the film decorating of plastic sheet in 1957.

The company established three prerequisites for the equipment. It should be realistically economic to operate, versatile for printing jobs, and require a minimum of maintenance. Atlantic was particularly concerned with the maintenance or repair problem.

After surveying the market Atlantic contracted for the installation of an $80,000 Lembo 6-color press. It decorates plastic sheet or film from 2/1000 to 20/1000 of an inch thick, up to 72 inches wide, at a maximum rate of 220 feet per minute.

When installing the press only explosion-proof electrical attachments were used, elaborate high velocity exhaust ventilation equipment was provided, and the press itself was grounded.

Glenn P. Smith, Atlantic's Director of Engineering (Right), and equipment representative (Left), check the installation of one of the press's rate-of-temperature-rise fire detectors (sphere on underside of pan). If fire flashes these elements automatically acutate 75 lb. cylinders of carbon dioxide located close to the press. Under its own pressure the gas escapes from its cylinders and passes through piping to multijet nozzles on the press, drying oven and exhaust ducts. Within seconds, the multijets discharge sufficient carbon dioxide to completely envelope the press, its pit and ducts. The inert gas reduces oxygen in the air to a degree insufficient to support combustion. Fire is smothered at once.



Atlantic Tubing and Rubber Co.'s new six-color press has an automatic carbon dioxide extinguisher system.

Engineer explains to Mr. Smith how cylinders can be manually actuated at press. Pull boxes also trigger system.

Mr. Smith knew, however, that these preventative measures were not enough. In spite of these precautions, static sparks do build up on employees (rubber soled shoes are prohibited) and can arc to the flammable inks and solvents setting off a blaze.

To guard against this possibility, the Lembo press was equipped with an automatic carbon dioxide fire extinguishing system. It is powered by eleven 75-pound cylinders of the inert fire smothering gas. A duplicate bank of cylinders stands as a reserve.

The system has rate-of-temperature-rise detectors mounted at strategic locations. If fire flashes, these elements automatically actuate the cylinders of carbon dioxide adjacent to the press.

Reserve for Reflash

Under its own pressure the gas escapes from its cylinders and passes through piping to multijet nozzles on the press, dry oven, and exhaust ducts. In seconds, the nozzles discharge sufficient carbon dioxide to completely envelop the press and its pit and ducts. The inert gas reduces oxygen in the air to a degree insufficient to support combustion. The fire is smothered in seconds.

Should a reflash occur, the second bank of carbon dioxide cylinders is available which can be actuated manually. If the fire is out, by throwing a switch they can be placed on automatic fire guard while the main bank of cylinders is being re-charged. Pull boxes are also provided at the press and at the cylinders to actuate the system manually.

It is important that in case of fire all power for the press be turned off, its forced draft ventilation be shut down, and an alarm sounded. This was easily accomplished by installing pressure-operated switches in the carbon dioxide piping. As the gas floods past the switches it actuates them causing a bell to sound and electricity to motors and blowers to be turned off.

In addition to its efficient fire smothering ability, carbon dioxide has other attributes. Being an inert, moisture-free gas it cannot damage the press or work-in-process and following discharge eventually dissipates into the atmosphere leaving no mess to be cleaned up. In addition it is a non-conductor.

Atlantic also has similar carbon dioxide systems on its four other roto presses.

How has this protection paid off? "Very well," according to Mr. Smith. Working with F.I.A. on insurance rate adjustments, the cost of the systems can be amortized in five years on insurance savings alone! And what of fire losses? "None," states Mr. Smith. "When we've had fires, the system has extinguished them immediately without damage to the press or work-in-process. In addition, the presses were re-started almost immediately."

Even though Atlantic has a standing rule, "No Press to be Operated Without Its Carbon Dioxide System Ready for Use," nevertheless it has provided larger capacity carbon dioxide portable extinguishers in great numbers in its press rooms. In addition, every employee working in these areas has been trained in the use of the safety equipment provided!

Pictures by courtesy of Walter Kidde & Co., Inc.

Special Fire Risks

"Factors in Special Fire Risk Analysis" by William Durant Milne is being published by Chilton. This vitally important volume to all who own or manage factories, warehouses, department stores, public utility plants, or other special use establishments stresses the obligations of insurance companies, the interrelationship between field inspector reports and examining underwriters and covers the occupancy hazards of buildings and their construction problems. The book includes: a discussion of the companies, fire itself, underwriting, construction, occupancy, exposure, public protection, automatic sprinkler protection (this is covered in complete detail), inspection of sprinklered risks, impairments, investigation of losses, and sprinkler leakage.

Mr. Milne has worked for many years with the Eastern Underwriters Inspection Bureau. The book is available for $10 from Chilton Co., 56th and Chestnut Sts., Philadelphia 39, Pa.

THE POSITIVE LADDER SAFETY DEVICE LOCKS-IN-A-NOTCH!

Prevents death and injuries from falling. If climber starts to fall, device locks in a deep notch on carrier rail and limits fall to approximately 6 inches —distance between notches.

LOCKS AUTOMATICALLY and INSTANTLY—HOLDS SECURELY

Will catch and hold workman if he starts to fall, even if unconscious. Cannot slip on down ladder. Requires no attention from climber; he climbs in normal manner. Inexpensive. Easy to install; 3 men can clamp it to ordinary ladder in few hours. Clamps to any rung ladder, peg ladder, pole or framework. No welding or cutting. Notched rail hot-dipped galvanized. Entire equipment rust and corrosion proof. Can be kept free of ice by applying heat inside the carrier rail. In use approx. 11 years. Approved by Safety Engineers and Government Agencies throughout country. Patented. Manufactured only by

SAFETY TOWER LADDER CO.
1024 Burbank Blvd., P.O. Box 1052
BURBANK, CALIFORNIA

(Use Key # K-41 on Inquiry Card on page 71)

FOILLE.
FIRST AID SPRAY *FOR BURNS*

FOILLE — the antiseptic, analgesic dressing — is indicated for fast, effective relief of pain from burns, sunburn, cuts, wounds and abrasions. Areas can be sprayed thoroughly to provide prompt patient comfort and eliminate painful swabbing. FOILLE fights infection and promotes healing. In 3 oz. and 10 oz. spray.

CARBISULPHOIL CO., DALLAS, TEXAS

ORDER NOW from your supplier

(Use Key # K-42 on Inquiry Card on page 71)

inside the trade

The election of *Harris J. Klein*, a New York industrialist, as chairman of the board of *WARD LA FRANCE TRUCK CORP.*, Elmira, N. Y. has been announced. A practicing attorney, Mr. Klein headed the group of investors who purchased the assets and business of Ward La France earlier this year.

Founded in 1918, Ward La France is a pioneer in the manufacture of fire apparatus, motor trucks, utility equipment, cargo containers and military vehicles.

J. L. Brenn

February 19, 1959, marked the fortieth anniversary of the incorporation of *HUNTINGTON LABORATORIES*. The Huntington, Indiana, firm is now the second largest manufacturer of its type in the United States, producing chemical maintenance, sanitation and production supplies.

Huntington's president, *J. L. "Jake" Brenn*, moved into what used to be a brewery in 1919. His original operating tools were some wooden beer vats, other old brewery equipment, four employees and practically no business.

Now he supervises the activities of nearly 200 highly trained personnel who develop specialized products that go to every state in the Union and across the seas. The aggressive firm has a branch office and plant in Philadelphia, Pa.; operates in Canada; has a sales force in Hawaii; and carries on an active export business in Central and South America and other parts of the world.

According to Mr. Breen, the goals of the company are to help fight infection and maintain cleanliness in hospitals; protect our expensive investments in school buildings; and do a variety of specialized maintenance, sanitation and production jobs in industry.

Several promotions at *FLEXIBLE TUBING CORPORATION'S* Guilford, Conn., office and other offices throughout the country have been announced by Frederick Daggett, company president. *Stephen K. Hawkins* becomes National Sales Manager of General Products, operating out of Flexible Tubing's Hillside, Ill., office. *G. William Loveday*, formerly assistant manager of Industrial Component sales, becomes Assistant to the President at the Guilford office.

Regional Managers appointed for the General Products division include: *A. H. Loux* at the Guilford office; *Lew W. Crockett, Jr.*, at Atlanta; *Joseph H. Dendy* at Cleveland; *Marvin K. Gardner* at Dallas; *George A. Booth* at Hillside, Ill.; *James T. MacFarland* at Anaheim, Calif. In the Technical Products division, Regional Managers appointed are: *Robert H. Stevenson, Jr.*, at Dayton; *John D. Kohler* in San Francisco; *Wesley L. Guiles* at Guilford.

A new Marketing Research and Product Planning Department has been established by the Industrial and Marine Division, *WALTER KIDDE & COMPANY, INC.* (Belleville, N. J.). This was announced by *Truman Young*, Kidde's Manager of Market Development, and Advertising and Sales Promotion Manager. *Charles R. Ham* who formerly was Director of Market Research for the American Institute of Steel Construction, Inc. has joined the department as Marketing Research Analyst.

Four executives have been named to new posts by John W. Simmons, president of *THE WILSON RUBBER CO.*, a division of *Becton, Dickinson & Co.* Appointed assistant to the President was *George Lenhart*, who has been with the firm since 1931 and will continue his present duties as Superintendent, Plant No. 2. *Elwyn H. Becker*, with Wilson since 1940, has been made Chief Chemist. *John Yacos, Jr.*, becomes the Acting Superintendent, Plant No. 1; and *William S. Zimmerman* moves up to Assistant Superintendent, Plant No. 2.

Appointment of *John R. Adams* to direct the Customer Research Laboratory and Spray Painting School of *BINKS MFG. CO.*, Chicago, Illinois, was announced by Burke Roche, president. In addition to his basic duties, Mr. Adams will also conduct special courses, direct material testing procedures, and speak at spray painting industry clinics and educational forums. He will also work with technical departments of paint and coating companies for the purpose of mutually exchanging information that will lead to better coatings and more improved application methods. More information on the services of the Customer Research Laboratory and the Spray Painting School can be obtained by writing Binks Mfg. Co., 3114 Carroll Ave., Chicago, Illinois.

Jack Thesenga has been appointed factory sales representative for *SELLSTROM MFG. CO.*, in the Rocky Mountain area. He will represent the manufacturer of face and eye protection equipment in Colorado, Kansas, Nebraska, Wyoming, Montana, North and South Dakota, and neighboring Canadian provinces.

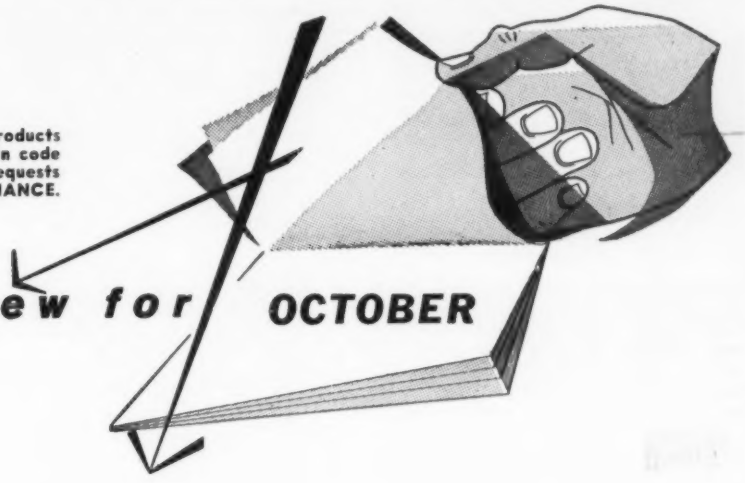
Clark C. Cone

The appointment of *Clark C. Cone* as General Manager and Director of Sales has been announced by *BUSTIN STEEL PRODUCTS, INC.*, Dover, N. J., designers and producers of industrial safety grating and all-purpose grille assemblies. Mr. Cone, who has had broad experience in sales, marketing, engineering and business administration, will direct the Bustin sales program at the national level and work closely with those accounts requiring his specialized skills. Before joining Bustin, Mr. Cone held managerial positions with several businesses allied to the steel industry.

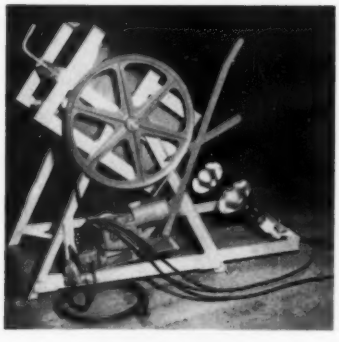
Appointment of *Guy J. Berghoff* as vice president in charge of *PITTSBURGH PLATE GLASS COMPANY'S* paint division has been announced by David G. Hill, president. Mr. Berghoff succeeds C. Robert Fay who died on July 19. In his new position, Mr. Berghoff will be in charge of all operations of the paint division including 13 paint and plastic plants, three brush plants and one of the most modern research and development centers in the industry. Mr. Berghoff joined the company's glass advertising department in 1934. He was named director of public relations in 1944 and director of all of the company's advertising in 1947. He was appointed assistant to the vice president of the merchandising division in 1954 and during the last three years has served as general manager of paint sales for the merchandising division.

Material appearing in this section is published as information and is not intended to imply endorsement or guarantee by SAFETY MAINTENANCE.

To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.



what's new for OCTOBER



ROTARY MIXER

(Use Key # 970 on Inquiry Card on page 71)

A ROTARY MIXER for blending powderless etching additives, has been introduced by the Thompson Mfg. Co. By a continuous tumbling action, the mixer blends the chemicals in their original five gallon containers. Two infra-red lamps, mounted on the mixer frame, bring the contents to a proper temperature. The mixer is powered by a 115V, AC-DC, continuous duty, gear head motor, and the drive is by means of a V-belt and pulleys. For easy loading and unloading, the apparatus is equipped with a belt tension lever, which in the released position allows the basket of the mixer to be manually operated as a tilter for pouring the contents directly from the container.

MARINE FIRST AID KITS

(Use Key # 971 on Inquiry Card on page 71)

FIRST AID KITS with contents protected by heat-sealed wrappings and encased in 20 gauge, watertight steel are available in four sizes to fit the requirements of smaller and larger vessels, from the Pac-Kit Co. The Pac-Kits include all standard first aid components, including compresses, bandages and medicants. The permanent contents chart attached to the inside of the kit cover shows correct unit products for refilling the vacant spaces. The kit has the approval of the U. S. Coast Guard.

ALUMINUM CLEANER

(Use Key # 972 on Inquiry Card on page 71)

AN ANTI-OXIDENT for cleaning aluminum, chrome, glass and other metals, has been developed by Key Products, Inc. The agent, An-Ox-Al, removes oxidation, soil, stains, etc., and creates a smooth surface. It is non-flammable, non-injurious to aluminum, chrome, etc., and does not require water or rinsing. Applications include factory and skylight windows.

SAFETY SPECTACLES EASILY ADAPTED FOR SIDE SHIELDS

(Use Key # 973 on Inquiry Card on page 71)

THE ADDITION of a new metal frame safety glass to its line of protective eyewear, has been announced by Bausch & Lomb Optical Co. The M-70 combines a

durable metal frame with Bal-Safe lenses for greater protection and smart appearance, and features a re-designed, expansion-type endpiece which allows easy assembly of both lenses and side shields. The design of the new expansion endpiece enables the same front to be used with or without side shields, and with no alteration of lens size. Assembly (or disassembly) of the shields is simplified and they are held in place as securely as if they were a permanent part of the frame. Side shields are attached simply by loosening the extra long end piece screw, inserting the shield retainer in the eyewire groove, and retightening the screw. A choice of six types of shields is offered. One of perforated wire mesh has fine screen to stop particles and give ample air flow; a second of insulated wire mesh features a heat-resistant covering. Four other designs (solid or perforated) are available in clear or green acetate. The basic frame design and selection of shields provide for quick adaptation to many different job requirements.

PORTABLE SAFETY SHIELD

(Use Key # 974 on Inquiry Card on page 71)

A NEW portable safety shield, especially designed for welding, grinding and other metal manufacturing operations, is being introduced by the Special Products Division of Singer Glove Mfg. Co. Among its several features are: Curtain made of heavy duty olive drab duck, treated with U. L. approved Hooper Fire Chief Flame-Resistant finish; guaranteed water and mildew resistant. The curtain wraps around the metal frame and is secured by heavy-duty rust-proof snap fasteners. The frame is constructed of heavy tubular steel and steel connecting rods in rust-proof black oxide finish. The rods are inserted into the open ends at the top and bottom of the tubular uprights and held in place by the curtain. This assures a strong, sturdy, solid shield.

The shield can be assembled and taken apart in three minutes. It folds flat for compact space-saving storage or transportation. No hooks, bolts, screws or wires are used and no tools required to assemble or take it apart. The Singer Portable Safety Shield comes in four standard sizes.

DISPOSABLE PLASTIC GLOVES

(Use Key # 975 on Inquiry Card on page 71)

WIL-GARD CLEAR POLYETHYLENE, five-fingered disposable gloves, being manufactured by the Wilson Rubber Co., may be worn on either hand and are extremely easy to slip on or strip off. Lighweight, flexible and moisture-proof, the gloves protect hands from many chemicals, powders, and resins. They also safeguard precision parts against perspiration corrosion and keep foods free from hand contamination. Poly-D gloves feature strong, heat-welded seams with super-smooth edges that provide excellent resistance to snagging and tearing, without sacrificing manual dexterity and touch-sensitivity.

NON-SKID PAINT ADDITIVE

(Use Key # 976 on Inquiry Card on page 71)

CAT GRIP, the new, non-skid compound which may be added to any paint, lacquer, enamel or varnish, is being produced by the Solfo Paint Mfg. Co. Cat Grip provides a non-skid, high-friction additive base which will not change the color of the paint with which it is used. It has a wide variety of uses and is an added safety factor for boat decks, docking platforms, scaffolds, cement floors, stair treads, etc. It is available in ¼-pound packages and also in larger units for industrial and plant maintenance requirements.

ASPHALT SEALER BROOM

(Use Key # 977 on Inquiry Card on page 71)

FOR THOROUGH, even distribution of sealing compounds to protect asphalt surfaces against the ravages of spilled gasoline, oils and chemicals, The Fuller Brush Co. has developed a light-weight flexible broom squeegee, designed for use in such areas as parking lots, driveways, playgrounds, airfield runways, service stations and tarred roofs. The filaments in the Blade Sweep are .020 black crimped nylon permanently anchored in a patented rust-resistant steel strip which will not warp or crack. They are easily cleaned and will remain strong and resilient in spite of long and continuous contact with most chemicals and solvents. The squeegee is useful for all jobs where the proper application of sealer is important to build a strong permanent barrier against penetration of pavements and roofs by water and chemicals.

CAN STERILIZER-WASHER

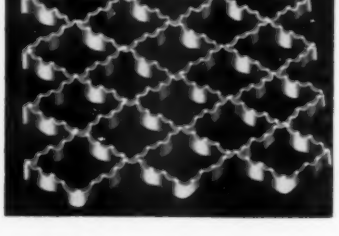
(Use Key # 978 on Inquiry Card on page 71)

A STAINLESS STEEL sterilizer-washer for cleaning and sanitizing refuse cans and drum, milk cans, stock pots, mixing kettles, large containers, etc., up to 25" o.d., the Aervoid is available from the Vacuum Can Co. The apparatus employs a pressure propelled ball bearing spray nozzle that cleans with a scouring action. The unit washes, rinses, sterilizes, deodorizes, preheats and precools, and is operated by simple foot pedal action. One of its applications is the cleaning, sterilizing and preheating of insulated food and liquid carrier-dispensers. Installation is adaptable to all plumbing conditions, and operation is possible with a variety of combinations utilizing hot water, cold water, or steam. Design and construction are in compliance with requirements of the U. S. Public Health Service.

NON-SKID SAFETY GRATING

(Use Key # 979 on Inquiry Card on page 71)

AN ECONOMICAL safety grating and all-purpose grille for use in product assemblies and fabrication is announced by Bustin Steel Products, Inc. The basic assembly consists of descaled, skid-proofed bars formed into a honeycomb design and welded by a hydroelectric pressure method. The result is a sturdy, lightweight grille assembly on which floor or stress load is evenly distributed over a wide area. Basic steel shot descaled bars provide a rust and scale free surface for painting or other surface on one side and, on the other, a non-skid serrated edge that completely eliminates slipping in the direction of bearing bars, even when completely submerged in grease. Weighing only 3 pounds per square foot, the full-depth design acquires great rigidity, replacing costly form preparations and steel reinforcing members in providing a floor or wall armouring. Its large open areas permit ready passage of light and air when used as safety flooring on outdoor installations. Wind resistance is cut to a minimum. Ice coating breaks through with slight weight pressure. Cutting is readily accomplished with friction saw or cutting torch and waste sections can be utilized in many miscellaneous applications. Progressive feeding process provides a wide selection of widths, governed only by the height of formed bar wave crests. All lengths are 9 feet. Plain surface Protecto is also available, as well as end plates, for assembling stair treads.



REUSABLE SCRUBBING PAD

(Use Key # 980 on Inquiry Card on page 71)

A SCRUBBING PAD designed for vigorous cleaning of rubber, vinyl and other resilient tile, linoleum, and wood floors without removing the entire wax film has been introduced by Minnesota Mining and Manufacturing Co. Called the "Scotch-Brite" brand Floor Scrubbing Pad, the product is of a flexible, non-rusting nylon construction which can be easily cold-water rinsed and squeezed damp-dry for immediate re-use or complete drying. The pad removes surface dirt, heel marks and scuffs in very little time, removing the least amount of wax. All that is necessary thereafter is to apply a light coat and re-buff. The product is designed for use with the "3M" brand Driving Pad (specially designed to provide good machine balance and complete contact of the maintenance pads with the floor). Even where floors are uneven, molded rubber "fingers" on the face of the driving pad provide active support, and longest possible pad life. The scrubbing pad is colored olive drab for positive identification, and is usable on both sides. Similar pads for stripping and polishing also available.

(Continued on page 73)

BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE. To obtain copies write in the key numbers on the free-postage card below.

FIRE PROTECTION

Combustion Safeguards 479
Protection Controls, Inc. Control units to provide continuous protection against fires or explosions from build-up of combustible fuel mixtures in single or multi-burner installations are described in this bulletin. Emphasizes new developments of electronic circuitry and a faulty burner indicating system.

Fire Hydrants 480
Kennedy Valve Mfg. Co. New 8-page bulletin offers information on a new line of fire hydrants redesigned with a minimum of parts for simplified maintenance without excavation. Featured is a new, improved model with a safety breakable section.

MISCELLANEOUS

Warning Tripods 481
Emarco Corp. This illustrated bulletin describes an unusually versatile warning tripod for day and night use to protect employees while working along highways. The compact, folding unit can hold up to five warning flags and up to four flashing lights.

Radioactivity Monitoring Systems 482
Nuclear Measurements Corp. A 16-page illustrated bulletin describes several monitoring systems for detecting, measuring and recording radioactivity. Included are seven particulate monitors, five detectors, a portable air and area monitor, and a diagram of a typical remote monitoring system for a reactor site. Featured is a method of identifying long half-life emitters with a single detector.

Test for Accident-Prones 483
Executive Assets, Inc. This 8-page brochure describes tests to be given to employees to predetermine which ones are accident-repeaters. Brochure tells how tests were developed and describes their use in a wide range of industries.

Machine Eye Shields 484
Standard Portable Cord Co. has produced a special shield to protect workers' eyes, face and neck. Shield is designed for attachment to grinders, planers, lathes, presses, saws, etc. Held by guaranteed magnets or, if desired, permanently attached, shield comes in two sizes and is easily cleaned.

High Strength Slings 485
Pennsylvania Sling Co. Bulletin details new nylon webbed slings in safety yellow designed for greater working load. Includes illustrations of the three types in which they are available, plus a chart for recommended usage.

Industrial Cleaning Method..... 486
Brulin & Co., Inc., has issued two brochures describing its new 815MX liquid cleaning and degreasing concentrate. Literature discusses its various applications, and points out special features, such as freedom from solvent ingredients and no flash point.

Rechargeable Batteries 487
Cook Batteries. New bulletin explains the performance features of secondary silver-zinc batteries for electronic equipment, underwater apparatus, etc. Photographs and drawings fully illustrate the various design applications, while specification charts and dimensional tables provide detailed information.

PERSONAL PROTECTION

Fire Resistant Clothing 488
American Optical Co., has developed a new line of fire free safety clothing. Fully described in the circular, this line of protective and comfortable work clothes is light weight, long lasting, and can stand repeated laundering without losing its flameproof properties.

Industrial Gloves 489
Wilson Rubber Co. New 16-page color catalog illustrates a complete line of industrial gloves and finger cots. Includes information on composition, weight, size and style of various gloves and cots. Wearing qualities, pliability and comfort are among the special features described.

Protective Devices 490
Atlas Safety Equipment Co., Inc. has released its 1959 Industrial Catalog covering Safety Belts, Harnesses, Safety Nets and miscellaneous safety equipment. Products are illustrated in detail, and accompanied by explanations, specific dimensions and areas of application.

Hand Protection 491
Star Glove Co. 2-page brochure provides details on a variety of industrial gloves. Photos and charts describe these, pointing out special features, and ordering information for various types of gloves made of fabric, leather, neoprene and plastic.

Fire Fighting Suit 492
Mine Safety Appliances Co. introduces new fire protection wear in its latest bulletin. Light weight, aluminized fabric, fireman's suit and a fire fighter's hood, specially designed for greater safety are illustrated.

(Continued on the next page)

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READER'S INQUIRY CARD

HOW TO GET FREE DATA! **(No Postage Required)**

ADVERTISED PRODUCTS: Just insert the key number shown under each advertisement in the boxes below.
NEW PRODUCTS ("WHAT'S NEW" PAGES): Insert the key numbers shown on each item.
FREE BULLETINS & CATALOGS: Insert the key numbers shown on this page.
KEEPING UP WITH RECENT DEVELOPMENTS: Insert the key numbers shown on items in special feature article.

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OCTOBER, 1959 Please send me the following free data

MAIL POSTAGE PAID CARD FOR MORE DATA

Free Bulletins (Cont'd)

INDUSTRIAL HYGIENE

Air Sampling Techniques 493
Gelman Instrument Co. New booklet discusses several methods of determining amount and size distribution of airborne dusts. This is of particular interest to safety engineers, health physics people, air pollution workers and process engineers. Literature includes photos, charts, and clearly defined air sampling techniques.

Dust Control Equipment 494
Torit Mfg. Co. Data and information on a wide range of dust collector accessories is now made available. Illustrations, drawings, and specifications show how "tailor made" installations, at lower costs and with maximum efficiency can be achieved.

PLANT MAINTENANCE

Floor Surfacing 495
Walter Maguire Co., Inc. Properties, recommended applications, and special advantages of "Emeri-Epox," a floor surfacing and patching material are set forth in new bulletin. Drawings and photos clarify instructions for preparation and application. Literature includes choice of available colors.

Aluminum Grating 496
Klemp International. Literature actually printed in four colors on aluminum foil has been prepared to introduce "Anotec," a new architectural anodized aluminum grating. Described and illustrated are its various applications, designed for both building interiors and exteriors. Charts and design specifications provide necessary details on this colored grating.

Floor Maintenance in Hazardous Areas 497
Spencer Turbine Co., has published a bulletin describing vacuum cleaners for use in hazardous areas. Powered from existing compressed air lines, the units have no motors or electrical wiring, assuring non-sparking operation and safety in dust or fume-filled atmosphere.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
117	Safety Shoes
118	Safety Boots
	FIRST AID AND HYGIENE
121	Skin Cleansers
122	Sanitary Drinking Facilities
123	Wash-up Facilities
124	Salt Tablets
125	Resuscitator Tubes
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Throat Medication
131	Eye Wash Fountains
134	Hearing Testers
135	Hearing Protectors
136	Noise Analysis Equipment
	FIRE PROTECTION
140	Fire Extinguishers
142	Fire Alarms
143	Safer Solvents
144	Degreasing Machines
145	Drum Safety Valve
147	Incinerators
148	Watchmen's Control Systems
	LIGHTING AND WARNING DEVICES
150	Alarms & Warning Lights
153	Fluorescent Lamp Guards
154	Emergency Lights
	MAINTENANCE
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Floor Cleaning Machines
164	Floor Resurfacing Materials
165	Paints
	LADDERS & HANDLING
170	Ladders
171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
177	Carboy Pumps
	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
181	Vacuum Sheet Lifters
182	Valve Operators
184	Safety Lock-Outs
	EDUCATIONAL AIDS
191	Safety Signs
193	Employee Safety Guide
195	Changeable Letter Signs

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Service Dept.

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for further data on ADVERTISED PRODUCTS, NEW PRODUCTS, FREE BULLETINS & CATALOGS

WHAT'S YOUR PROBLEM?

AUDIBLE ALARM FOR BREATHING APPARATUS

(Use Key # 981 on Inquiry Card on page 71)

A NEW AUDIBLE Alarm for use with its Air Pak, has been announced by Scott Aviation Corp. The sound of a ringing bell, warns the wearer that the air in the cylinder is low and a full cylinder should be substituted. In actual operation the alarm is preset at the factory to sound off at 400 P.S.I. It will continue to ring until the air supply is exhausted. This period of ringing gives ample time for the wearer to make a safe exit. The alarm is connected directly to, and actuated by, the air supply, providing a thoroughly reliable, fool-proof system.

EMERGENCY DOOR OPENER

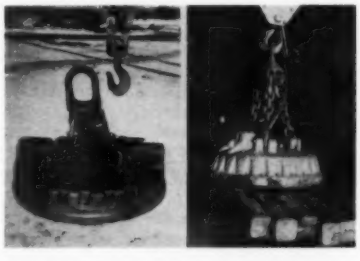
(Use Key # 982 on Inquiry Card on page 71)

A HAND TOOL designed to forcibly open wooden or metal doors in case of emergency, such as a fire, or in demolition work, and which also opens emergency avenues of entry or escape through brick, stucco or wooden walls, has been developed by Sammons & Sons. Manufacturers claim it has the power and speed of an air-hammer and can open jammed doors in less than 5 seconds, usually without injury to the door. Rambar has a tempered tool steel cutting edge and works on the impact principle of operation. Outer handle slides up and down shaft. Operator grasps hand grip with one hand and slides handle with other, placing chisel point between door stop and casing just above or below lock. Sliding handle is extended and manipulated by pushing handle to closed position. Operation spreads door and casing far enough apart to release lock. In retracted position, the tool is 36" long, extends to 52". Weight is 23 pounds. The Rambar can also be used as a crow-bar or a battering ram. Other uses: to cut through roofs and floors, to force entry through double hung windows, to cut padlocks, bolts, studs and nails, to open up concrete, split timbers, open metal containers, as a roll to move heavy objects, or as a rescue tool in cases of automotive accidents where car doors are jammed.

ATHLETE'S FOOT PREVENTIVE FOOTSPRAYER

(Use Key # 983 on Inquiry Card on page 71)

A NEW FOOTSPRAYER to dispense a skin-toughening solution for the prevention of athlete's foot, is being manufactured by Onox, Inc. When bathers step on the treadles, four jets spray feet and toes thoroughly. The footsprayer effects increased economy, the company reports, dispensing medication at a cost of approximately 1/10 of a cent per treatment. The product is made of Fibreglas and high-density polyethylene with a non-skid rubber base. It is sanitary, easy to clean and service, and holds a gallon of solution, sufficient for more than 3000 treatments.



MAGNET CHAIN ASSEMBLIES

(Use Key # 984 on Inquiry Card on page 71)

FABRICATED from durable alloy steel components and heat-treated for maximum service life, these Accoloy #125 Steady-Lift magnet chain assemblies are designed to accommodate electrically energized magnets of all sizes and lifting capacities. Developed by the American Chain Division, American Chain & Cable Co., the units employ an erect master link which eliminates pinched fingers. Because of the rigid section of the master link, the crane operator can pick up or deposit the assembly at any location in the plant or yard without having any crane follower or other employee handle it. Tripod construction prevents chain damage due to twisting, a common cause of excessive wear and breakage. All legs are replaceable in the field, being connected to the master alloy casting with square-end pins. These pins prevent rotation, thereby eliminating wear of casting at attachment points. Peening of end links is reduced by use of drop-forged alloy steel stud links at the extremities of each chain leg, protecting against excessive amounts of slack which damage links when the crane operator lifts the magnetized load. These Steady-Lift units are available in 1-inch and 1¼-inch chain assembly sizes. The 1-inch components accommodate magnets of less than 60 inches in diameter while the 1¼-inch unit is designated for utilization with magnets of 60-inch diameter and larger. Both assemblies possess a 7 x 12 inch erect master link that will work with all standard crane hooks.

WIND COMPONENT RECORDER

(Use Key # 985 on Inquiry Card on page 71)

A NEW INSTRUMENT which accurately measures both vertical and horizontal wind components, has been developed by the Gelman Instrument Co. The maximum overshoot of the Gelman-Gill Rapid Response Bivane, the company reports, is 15% compared to 200% with standard wind vanes. A permanent record of this information is obtained on a companion recorder. High accuracy is necessary for air pollution studies, micrometeorological work and gas diffusion analysis. In studies of fallout from atomic energy plants, accurate information on wind patterns is essential, and in designing and operating large power and processing plants, detailed micrometeorological data is very often required.

REFLECTIVE SIGNS

(Use Key # 986 on Inquiry Card on page 71)

VERSATILE reflective signs for plant entry, plant area or in-plant warning purposes are available from the Industrial Products Co. Made of Scotchlite reflective sheeting, the signs are visible under minimal conditions of light. Legends include emergency, danger, directional, caution, informational, first-aid and regulatory types. Reflective types may be mounted (on aluminum) or unmounted for pressure sensitive application to any non-porous surface.

HIGH-SPEED FLASHERS

(Use Key # 987 on Inquiry Card on page 71)

THE NEW NXA Series "Flashmasters" is announced by Carpenter Mfg. Co. The units have been expressly designed for high-speed applications on expressways, air fields, or for emergency warnings. The special multicoiled neon lamp and giant 7" lenses coupled with a rugged transistorized circuit makes possible a new high in significant light output. Range is well in excess of ½ mile. The lamp is said to have a lifetime measured in years, and that this will virtually eliminate need for lamp changes. The entire unit is encased with sturdy 18 gauge drawn steel and a separate, sealed and shock-mounted inner case protects the mechanism. The 12 volt battery has a continuous (24 hour) operating life of about six weeks. Special automatic or radio-controlled cut-offs are available to prolong battery life.

GERMICIDAL DEODORIZING CLEANER

(Use Key # 988 on Inquiry Card on page 71)

A NEW, high-quality soapless detergent, multi-purpose germicide combination has been developed by Huntington Laboratories to clean, disinfect and deodorize, all in one operation. Named Di-Crobe Germicidal Cleaner, it was originally developed for use in hospitals but is now available for use in office buildings, factories, etc.

The one-step cleaning operation is economical. It eliminates the expense of separate products for cleaning, disinfecting and deodorizing, and saves greatly on labor costs. Both cleaning action and germ-killing powers are carefully balanced so the proper dilution for cleaning is also the proper dilution for killing germs. Because of the absence of soap, Di-Crobe does not require rinsing and leaves an active germicidal layer on surfaces cleaned. If desired, however, it will freely rinse off any surface. It can be used on all building surfaces not harmed by water alone. It is effective in any kind of water, whether it is hard or soft, hot, warm or cold. It can be applied with a mop, sponge or rag.

ICE MELTING CHEMICAL

(Use Key # 989 on Inquiry Card on page 71)

ICE AND SNOW melting chemical pellets, utilizing a specially formulated oil additive, are being produced by the National Asphalt Corp. Nacor Melts-It is claimed to have 32 times greater thawing capacity than salt at 5° F. The new additive, incorporated into the pellets' NA-23 rust inhibitive, is reported to create a moisture seal within the material and to prevent chemical decomposition. As a result, rust action is further retarded and storage life increased. Common applications of the pellets include steps, drives, parking lots and loading ramps. In addition, Nacor Melts-It is said to be suitable for thawing drains, gutters, downspouts, switches, sewers, etc. It mixes readily with abrasives for large scale use.

SOLVENT RESISTANT GLOVE

(Use Key # 990 on Inquiry Card on page 71)

HAND PROTECTION against powerful solvents is provided by SolvaSeal coated fabric gloves, developed by the Surety Rubber Co. Designed and treated for safe, effective handling of ketones, acetones and paint-stripping compounds, and other hard to handle solvents, the gloves are light weight with curved fingers, wing thumb construction and blunt finger ends for complete hand comfort. Strength and durability provide long service.

TRUCK-MOUNTED ULTRASONIC CLEANER

(Use Key # 991 on Inquiry Card on page 71)

MOBILE ULTRASONIC cleaning systems designed for permanent installation on such vehicles as highway and street lighting maintenance trucks are being manufactured to order by Acoustica Associates, Inc. Cleaning tanks up to 75 gallons capacity and ultrasonic power generating units rated up to 2500 watts can be furnished. Electrical power for operation of the equipment may be furninshed by an auxiliary engine-driven generator or from the vehicle battery through an inverter. A mobile ultrasonic cleaning system enables rapid on-location cleaning of street light lamps and reflectors as well as traffic light lenses and parking meters. The need for packing and moving parts to a central depot for cleaning is eliminated. Most items can be thoroughly cleaned ultrasonically in less than 60 seconds and can be placed back in service immediately.

ALUMINUM-ASPHALT COATING

(Use Key # 992 on Inquiry Card on page 71)

A NEW PROTECTIVE, reflective asphalt emulsion coating compound in aluminum color, has been introduced by The Flintkote Co. A non-flammable product which will not flow in hot weather, nor stain or alligator or crack over any type of asphalt sub-surface, the newly developed coating, Aluminized Static, is designed for use on roofs, bridges, water tanks, and many other exposed surface areas. The company reports that the product has a good retention of brilliance and reflectance which will last five years and longer, and is the only asphalt emulsion containing aluminum. Aluminized Static is easily applied and dries fast. It is self priming and will adhere to metal, glass, masonry, rock or asphalt covered surfaces (i.e. old built up roofs, corrugated metal, old shingle roofs, etc.) forming a continuous protective film. The product also has waterproofing qualities and will bridge small voids, such as pin holes in old, rusted sheet metal.

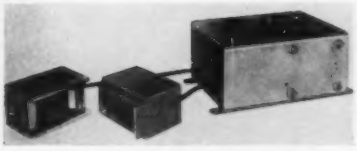
OXYGEN THERAPY REGULATOR

(Use Key # 993 on Inquiry Card on page 71)

INTRODUCTION of a new oxygen therapy regulator, engineered for accurate delivery of oxygen within medically acceptable limits, has been announced by Smith Welding Equipment Corp.

Designed for use with any bubble-type humidifier, the H730 regulator is suitable for emergency administration of oxygen by such organizations as hospitals, industrial safety divisions, and police and fire departments. The apparatus has a micro-drilled metering orifice, obtained by a jet drill capable of boring holes as small as .00025" in diameter. An extra-long inlet connection used on the regulator permits easy attachment to oxygen cylinders. A spring-loaded safety relief valve opens at 140 to 180 psi, and reseats itself when pressure drops to normal.

The H730's high pressure (3000 psi) gauge is 2" in diameter, as is the low pressure gauge, which has a maximum calibration of 15 liters per minute. The inlet (.916—14 R.H.) fits standard medical oxygen cylinder valves, while the outlet (9/16" —18 R.H.) fits I.A.A. standard "B" connections. The regulator (without humidifier) weighs 3 lbs., 3 oz.



ELECTRIC SAFETY LOCK

(Use Key # 994 on Inquiry Card on page 71)

THE LANCE LOCK is a failsafe device for insuring that electrically powered or operated machines, apparatus or equipment cannot be started unless the safety door or guard is automatically locked in place. It is also a protective device on equipment involving high voltage. The lock, which is available from Lindly & Co., Inc., consists of a split transformer, one half of which is fastened to the machine itself and the other to the access door, operating lever, handle or other closing means. Only when both halves of the transformer are properly mated can the machine starting switch in the main circuit be closed. Likewise, the guard or door cannot be opened until the machine has been switched off. The design of the lock is such that when the two transformer halves are brought together exactly in the proper position and the starting switch turned on, the pivoted half of the transformer is attracted to the other half, mechanically locking both together so that no lateral movement is possible. This also allows enough current to be generated in the secondary winding to close the machine power circuit. It cannot be tampered with while in operation. Typical applications are on centrifuges, presses, industrial material handling systems such as hoists and elevators, crushing machinery, high voltage systems, etc.

MOBILE AIR MONITOR

(Use Key # 995 on Inquiry Card on page 71)

NEW AIR monitor AM-3A, manufactured by Nuclear Measurements Corp., features four interchangeable detectors, including one said to be three times as sensitive as any other now commercially available. By choice of detector, the monitor is able to sense any of four combinations of radioactivity—1) alpha, beta, and gamma, 2) beta-gamma, 3) alpha, or 4) beta. Most sensitive detector is Model FGM-1, designed for sensing alpha, beta and gamma radiation instantaneously, without radiation discrimination. It consists of a 2" hemisphere gas flow geiger detector with 1 mg/cm^2 thick mylar window. An all-transistorized amplifier is built as part of the probe. The moving filter provides a choice of immediate detection of first surface deposits as collection takes place, or delayed detection, with a choice of continuously moving, fixed or step-wise moving filter. Other features include bell and light alarm system, continuous duty positive displacement industrial type compressor, 4" wide recorder, and three air flow control options. The mobile cart mounted unit is 16" deep x 36" high x 48" wide, and weighs 600 lbs. net.

EASY FIT SAFETY SPECTACLE

(Use Key # 996 on Inquiry Card on page 71)

EASY IN FITTING, ability to stock fewer sizes, and an improved safety eye-wire are features of the Varifit safety spectacle introduced by the United States Safety Service Co. The bridge is proportioned to the eye size of the frame in a manner that permits correct fitting of safety glasses on over 95% of employees. This eliminates the necessity of stocking various eye sizes in a variety of bridge sizes. The redesigned eye-wire locks the lens in place many times more securely than heretofore possible. The company reports that a frontal impact of well over 200 lbs. is required to dislodge the lens from its secure mounting. Modern style is emphasized in design and color. Lenses are available in hardened glass or lightweight plastic.

TWO-THUMB REVERSIBLE MITT

(Use Key # 997 on Inquiry Card on page 71)

A DOUBLE DUTY, reversible industrial safety mitt, of Kelnit Iron-Kore fabric, which provides reversibility and permits the natural positioning of the thumb for a better grip in the handling of heated or sharp objects, is available from Keller Glove Mfg. Co. An extra thumb tucked into the mitt or hand pad across the knuckles, affords additional cushion protection for the back of the fingers, and turns out for use along with the reverse side of the mitt when the original surface becomes soiled or worn. It provides closed-end hand protection with 4 different wearing positions. The entire wearing surface of the mitt or pad, known as the Kelnit Klaw, is of one piece construction, eliminating seams, bunching of material, and uncomfortable, insecure grip. The fabric itself forms a semi-porous surface that dissipates heat and resists cuts from sharp metal edges. The gloves may be dry cleaned or laundered and, due to their construction, can be easily repaired for further service. Each unit is also interchangeable for the right or left hand thus simplifying inventories and speeding their collection and distribution in the plant.

GERMICIDAL-DETERGENT

(Use Key # 998 on Inquiry Card on page 71)

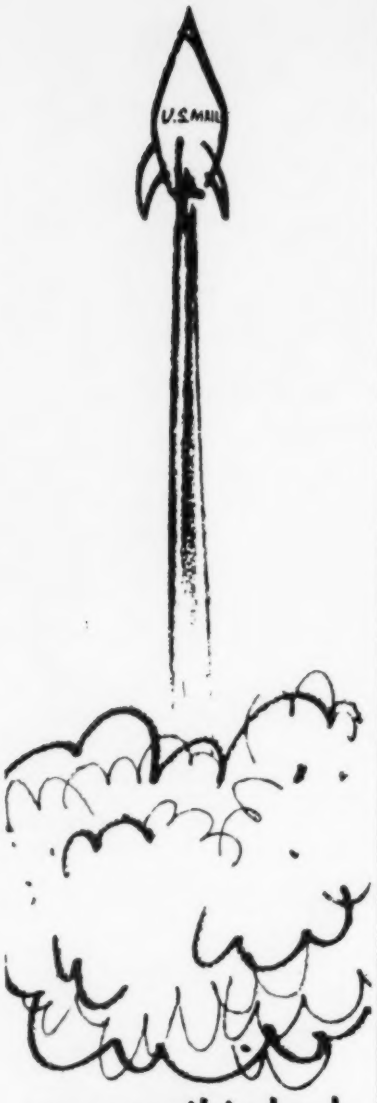
A GERMICIDAL-GENERAL purpose cleaner, GERMERASE, introduced by Horizon Industries, is a heavy concentrate and can be used in dilutions as little as 256 to 1. The new liquid is both germicidal and fungicidal, and contains no skin irritants.

Germerase has a phenol co-efficient of 40 against staphylococcus, in use dilution. Mopped floors provide a prolonged residual bacteriocidal action which reduces bacteria count of air borne germs and contamination by foot traffic. Suggested uses are: Floor and wall maintenance—general disinfection of hospitals and operating rooms—swimming pool water conditioning—space deodorant spray in hotels—cleaner and deodorizer in such critical areas as public restrooms and animal research labs—drug and food processing plants.

BATTERY-POWERED FLOOR MACHINE

(Use Key # 999 on Inquiry Card on page 71)

DESIGNED for buildings with large, open areas, the Convertamatic floor machine enables one man, while he rides, to perform a complete floor maintenance job. On each pass, as it propels itself over the floor, the machine lays a cleaning solution, scrubs a 24" swath, vacuums up the dirty solution, and finally dries the floor—all in one operation. The machine can be also used for combination polishing and dry vacuuming. Manufactured by the Advance Floor Machine Co.



zone mail indeed results in speed

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

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NEOPRENE NYLON HOOD
A nylon-coated fabric which is also suitable for protection against water and oil.
731-N • (shown) without supplied air
732-N with supplied air

ACITEX HOOD
Transparent. All seams electronically sealed. Vinyl plastic window.
731-A without supplied air
732-A • (shown) with supplied air

Fiber Glass Foundation speeds window and canopy replacement in New CESCO Acid Hoods

• From CESCO comes another safety equipment development to help you cut the cost of replacing the window and canopy in hoods used for protection against acid and caustics. CESCO has simplified this time-consuming maintenance job by developing a new fiber glass foundation which can be disassembled or assembled in minutes. Here's all you do: remove window frame and air-tight molded rubber gasket by releasing toggle locks on sides of foundation. Replace window in frame. Position holes in hood opening to match those in foundation opening. Set gasket and window frame in position and lock.

CESCO Acid Hoods also feature the new Hed-Rite Headgear which is adjustable three ways: for head sizes, for overall strap length, for overhead strap position.

The materials used in the new Acitex and Neoprene Nylon Hoods shown are durable and strain-resistant, yet flexible enough to permit freedom of movement. Air-supplied models have a discharge tube mounted on the headgear, which is fed by a hose from an air valve suspended at the waist.

See your CESCO distributor or write our Chicago office for prices and complete information about CESCO Acid-Resistant Hoods.

CESCO

CESCO FOR SAFETY

CHICAGO EYE SHIELD COMPANY
2709 West Roscoe Street, Chicago 18, Illinois

(For details, use Key # K-43 on card on page 71)

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LOZENGES

first aid for throat irritations

THANTIS® Lozenges prevent lost man hours due to sore throats caused by coughs or colds.

THANTIS Lozenges do not produce unfavorable reactions in the mouth, because they contain no antibiotic.

THANTIS Lozenges act prophylactically to ward off infection.

THANTIS Lozenges have a twenty-nine year record of proven safety and effectiveness in clinical and lay use.

Mercurochrome®

First aid for wounds . . . . . .

MERCUROCHROME should be used promptly to prevent infection. No antiseptic has been proven to be more effective than MERCUROCHROME for topical application.

HYNSON, WESTCOTT & DUNNING, INC.

Baltimore 1, Maryland

(For details, use Key # K-44 on card on page 71)